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For Contents See Page 1.

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ORIGINAL COMMUNICATIONS.

(Original Communications are received with the understanding that they are contributed exclusively to THE LARYNGOSCOPE.)

NYSTAGMUS AND ITS CLINICAL SIGNIFICANCE.*

PROF. DR. HEINRICH NEUMAN, Vienna.

The static function of the human is controlled by several distinctly different organs. Modern labyrinthology has made possible the analysis of the individual symptoms of functional disturbances and their dependence on their respective organ-disturbances. Vertigo, nystagmus, and disturbances in equilibrium may as readily be produced by disease of the optic or kinesthetic as by disturbances of the vestibular or cerebellar function. The diagnostic significance of differentation of these symptoms is made possible in the vestibular apparatus. The differentiation of ocular disturbances or symptoms evoked by affection of the deeper sensibility from those of the vestibular apparatus or cerebellum, has been recognized for sometime, but the differential diagnosis between vestibular disturbances and those of the cerebellum have only recently been made possible.

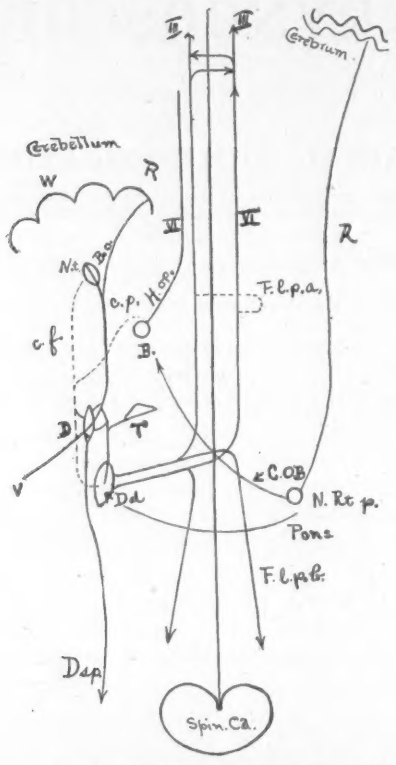
Vertigo and equilibrium disturbances are liable to great variation and subjective influences, but it is principally nystagmus on which we depend more definitely to develop such differentation.

The nerve connection of the vestibular apparatus with the eye-muscle nuclei represent the "reflex arch" on which the vestibular-occular reflex depends.

In the accompanying schema, Figure 1, it will be noted that the N. vestibularis sends its fibers to the four end-nuclei (C. Z.

*This paper was contributed to the Anniversary Number of The Laryngoscope, but was received too late for translation and publication in that number.

Reich: the three cornered or dorsal vestibular nucleus, Deiter's nucleus, the nucleus of the descending root of N. vestibularis and the nucleus of Bechterew). The vestibular ganglion is connected with the cerebellum mainly with the roof-nucleus



F l p a—Posterior longitudinal bundle, ascending branch. F l p b—Posterior longitudinal bundle, descending branch. D s p—Deitero-spinal tract. Ruck—Spinal cord. c p—Cerebello-petal vestibular fibers. c f—Cerebello-fugal tract to the vestibular nucleus. B o—Bechterew-eye muscle nucleus tract. N Rt p—Nucleus reticularis pontis tegmenti. Lo B—Central occular motor tract. III—Nucleus of the oculo-motorius. VI—Nucleus of the abducens. V—Vestibular nerve. D—Deiter's nucleus. T—Triangular or dorsal vestibular nucleus. D d—Nucleus of the descending root of the vestibularis. B—Bechterew's nucleus. N t—Roof-nucleus of the cerebellum. W—Vermiform process. L—Left hemisphere. R—Right hemisphere. F l p—Posterior longitudinal bundle.

of the fourth ventricle located in the vermiform process of the cortex. From the end nucleus of the vestibularis fibers may be traced to the homo- and contra-lateral posterior longitudinal bundle, yet it has not been determined how many of these fibers are distributed to the individual nuclei. The posterior longi-

tudinal bundle terminates in large degree in the eye-muscle nuclei (Spitzer); to lesser degree some fibers are also found in the spinal cord where they apparently re-enforce the substantial deitero-spinal tracts. We also find lateral undecussated fibers running from the posterior longitudinal bundle to the medulla spinalis (deitero-spinal tract) and also ascending from Bechtew's nucleus to the eye-muscle nuclei. The relation of the vestibule end-neuclei to the cerrebellum appears to be a double one cerebello-petale and cerebello-fugale of which the latter (vermiform process, roof nucleus and vestibular tract) come into special consideration. The relation of the cortex does not appear to be a direct one.

Not only anatomical but also clinical observations and experimental investigations have proven that the vestibulo-occular "reflex arches" constitute the fiber tracts that extend from the semi-circular canal apparatus through the N. vestibularis, vestibular nucleus, and posterior longitudinal bundle to the eye-muscle nuclei. Experimental investigations of Hogyes have proven that the vestibular apparatus of one side are in close association with the adductor group of the eye of the same side and the adductor group of the eye of the opposite side, both in stimulating and in inhibitory capacity. The other eye-muscle groups are also influenced in the same labyrinth but to much lesser degree.

Bauer and Leidler assume that an inhibitory influence on nystagmus originates in the cerebellum (veriform process, roof nucleus) and that the cerebral hemispheres also have a homolateral inhibitory and contra-lateral stimulating influence, but that the quick component of nystagmus is not of critical genesis.

Nystagmus may be incited from every individual point of the vestibulo-occular association. Clinical observations of recent years have proven that the several forms of these reflexes may show individual characteristics dependent on the locality of their origin. We can differentiate optic vestibular nystagmus from optic retro-labyrinthine nystagmus by the following factors: Optic nystagmus is undulating; both components are of equal rapidity; occular direction changes the intensity only in the presence when eye-muscle paresis is simultaneously present. Central or labyrinth-stimulated nystagmus is rhythmic because it is composed of a slow and quick component; here we must observe that only the slow reaction phase is stimulated by labyrinth irritation; the quick nystagmus phase on the other hand is produced by an extra-laby-

rinthine excitation. The circumstance that the quick component in nystagmus ceases when we cause a caloric reaction in the ear of a patient during narcosis or in coma produces instead of a nystagmus only a deviation of the eyes in the sense of a slow component, may be found not only in extra-labyrinthine excitation but also of cerebral origin. The explanation of this connection as proposed by Barany may also experience a one-sided interruption as observed in the patient reported by Rosenfeld. In this patient Rosenfeld assumed the presence of a right-sided hematoma or a tumor in the right cerebral hemisphere. While in deep coma this patient did not show either spontaneous nystagmus nor conjugate deviation. When the left ear was syringed with cold water no nystagmus resulted, but the patient showed a slow deviation of both bulbi to the left; the same phenomena occured to the right side when the right ear was syringed with cold water. The bulbi remained in this position for two minutes and slowly returned to the middle position. In a later test while the patient was lucid, syringing of the left ear with cold water produced a nystagmus to the right. When the right ear was syringed with cold water a slow deviation of the bulbi to the right took place, lasting about thirty seconds. The author used this observation to prove that the cause of the absence of the quick nystagmus could be ascribed to a unilateral interruption of the undecussated fibers in the cerebrum. He believed that the cause of this interruption was due to a space-contracting affection of the hemisphere in which the diseased focus was located. This conclusion could not be proven because no autopsy was undertaken. Rosenfeld believes that the presence of eye-muscle paralyses overlooked in deep coma, could be determined in this matter. Barany believes the conclusion, that only the slow movement in nystagmus is of labyrinthine origin and that the quick component of the saem is stimulated in the supra-nuclear visual center, can be utilized as a differential diagnosis in various cases of eye-muscle paralysis in the following manner: peripheral paralysis of the eye-muscle nerves or affections in the region of the nucleus entirely eliminate vestibular nystagmus in the region of such paralysis. According to Barany, supra-nuclear paralysis of the eye muscles present the following picture: voluntary movement of both eyes in the direction of the diseased side are absent, and the quick component in nystagmus horizontalis to the affected side is also absent. In (enspreckender) stimulation, a deviation of both eyes to the healthy side is produced instead of a nystagmus

horizontalis to the affected side. The eyes cannot be voluntarily liberated from this position. If, however, a horizontal nystagmus can be demonstrated to the healthy side, we produce this in typical form. During the duration of this test the deviation to the affected side is released. I had occasion to observe a patient with tumor symptoms in a left-sided abducens paralysis in whom vertigo had been produced by the turning test. Turning to the left produced a horizontal nystagmus to the right. While this nystagmus was present the patient could, in the sense of the slow component of the evoked nystagmus, voluntarily direct the left eye to the extreme external canthus. The left-sided abducens paralysis, therefore, was duplicated during the period of the nystagmus. I would not risk the assumption to diagnose this as a supra-nuclear paralysis, as I have not convinced myself whether in this case we have not a paresis joined with a voluntary innervation to the left and a vestibular component directed to the left.

Bielschofsky and Steinert have observed cases of paraylsis of vertical occular movement with maintenance of vestibular function (*Munch. Med. Wochenschr.*, 1906). In the involution of conjugate paralysis of the eye-muscles, Barany found a nystagmus to the side of the paralysis that was partly dependent on vestibular and partly dependent on eye-muscle paresis. In bilateral conjugate paralysis, on the other hand, every evidence of nystagmus in the area of the paralysis was wanting.

Brain tumors develop various forms of nystagmus dependent on the pressure which they exert on surrounding areas. Pressure on the corpora quadrigemina produces a vertical nystagmus upward. Ruttin observed a similar condition following the rupture of a brain abscess into the lateral ventricle. (*Deutsch. Otol. Gesellschaft, Hanover*). I had occasion to observe in the case of a tumor that attacked the velum medulare superius when syringing with cold water in the upright position of the head a nystagmus was produced with pure horizontal component; also after rotation; whether with head forward or backward in which positions we can regularly observe rotary nystagmus. It appears therefore, that the trochlearis which decussates in the velum medulare superius seems to have been hindered by pressure and therefore participated in the production of the nystagmus. I observed exactly the same phenomena in a case of brain tumor in which the site could not be definitely determined

as the phenomena varied rapidly. Apparently I could only determine horizontal nystagmus in the first examination, even with all of the manipulations by which regular rotary nystagmus can be developed. In a second examination, at which time an abducens paralysis had developed, the vestibular stimulus was typical and a rotary nystagmus resulted. A change in the tension of the cerebro-spinal fluid may also be sufficient to bring this relation of nystagmus into evidence.

In the attempt to explain all the phenomena, attention should be directed to the fact that Marburg endeavors to correlate the oral part of Deiter's nucleus with vertical nystagmus and the caudal part with horizontal nystagmus. Isolated affections of the posterior longitudinal bundle may also influence the occurrence of nystagmus to an unusual degree, in that in the maintenance of spontaneous occular movement, nystagmus is present on the healthy side but is not demonstrable on the diseased side.

While these facts as determined in the last few years may be found to explain nystagmus of various eye-muscle paralyses as well as several forms of nystagmus of central origin, I had an opportunity as far back as 1905 at the seventy-seventh meeting of the Deutscher Naturforscher in Meran to present observations by which nystagmus of labyrinth origin could be definitely differentiated from retro-labyrinthine nystagmus. Nystagmus of the end-organ as well as retro-labyrinthine nystagmus is rotary in character and may be best observed by looking in the direction of the quick component

Labyrinthine nystagmus is usually directed to the normal side when the function of the involved labyrinth is completely destroyed; if, however, the labyrinth is only partially destroyed the direction of the nystagmus is usually to the affected side; not infrequently, however, it is to the normal side, and, a fact that is of still greater importance is that the nystagmus changes its direction. Nystagmus resulting from a complete destruction of the labyrinth, however, is invariably directed to the normal side. Nystagmus found in conjunction with a completely destroyed labyrinth diminishes in intensity, in that it manifests itself in all positions of the eyes as well as in the direction of the normal side; in the later stages it is no longer observable in the direction of the slow component; on the other hand it is still observable to the normal side looking straight ahead and still

more distinctly in the direction of the quick component (that is, to the normal side). Nystagmus of the longest duration exists in complete destruction of the end-organ in the direction of the quick component (that is, to the healthy side). But also, however, in this direction, nystagmus does not remain constant, for before it completely disappears, there is added to the rotary nystagmus to the normal side a horizontal nystagmus with the quick component to the affected side, most distinctly observed by looking to the affected side. This horizontal nystagmus, manifested when looking to the affected side, indicates the onset of a central disturbance and leads to the complete disappearance of the nystagmus. In ten to twelve days and sometimes only after weeks the rotary nystagmus directed to the normal side disappears entirely and the end-result is the complete absence of nystagmus or a slight rotary nystagmus to both sides by extreme direction to both sides.

Circumscribed alterations of the labyrinth are usually evidenced by a rotary nystagmus to the affected side; occasionally also nystagmus to the normal side. If the cause of the circumscribed change is found to be an inflammatory one, nystagmus may even alter its direction. If the circumscribed involvement shows retrogressive changes the nystagmus directed to the affected side is diminished from day to day and gradually disappears. If this disease is progressive in character however, the nystagmus to the affected side increases in intensity from day to day, as the nystagmus, directed in the beginning only to the affected side, now observed in other directions with equal intensity, until finally, as a result of complete destruction of the end-organ, the quick component is directed to the normal side; in the beginning, in all directions; later, in the above-mentioned diminution, until complete disappearance occurs.

In manifest stages, therefore, nystagmus has a diagnostic significance; in latent stages functional examinations afford data to determine whether the disease of the end-organ is diffused or circumscribed in character. Inability to stimulate the labyrinth by caloric or turning test in cases in which the galvanic reaction is still active (in which the communicating loop must be carefully observed) indicates exclusively a complete disease of the end-organ. If, however, galvanic reaction is also absent a disease of the nerve to the primary nucleus is also indicated. In order to determine circumscribed changes in the

labyrinth in the latent stage we make use of bilateral syringing and differentation with the branched electrode in accordance with the following consideration: If both labyrinth react equally, simultaneous syringing of both ears and the application of the branched electrode to both ears will fail to produce nystagmus. If, however, one labyrinth or one nerve has had its function diminished by disease, simultaneous stimulation of both ears will produce nystagmus corresponding to the affected side and independent of the temperature of the water as well as of the manner of the applied electrode.

In this form of test, we not infrequently find an increased reaction as compared to the normal, especially in brain tumors, as observed by Ruttin and Hantant. In the discussion of intracranial, selective nystagmus, I will take occasion to refer to this again.

Retro-labyrinthine nystagmus is, with very few exceptions, rotary, usually directed to the affected side, often changing and with intervals in which no nystagmus is noticeable. This marked similarity between labyrinthine and retro-labyrinthine spontaneous nystagmus increases the difficulty of their differentation and aside from the accompanying symptoms in the encephalon and the cochlear apparatus, we are dependent on the following data: Labyrinthine nystagmus reveals a diminished intensity; retro-labyrinthine nystagmus shows fundamentally a stationary or even a distinctly increasing intensity. If the labyrinth of the diseased side can be completely excluded and spontaneous nystagmus can still be observed to the affected side, such nystagmus may be distinctly specified as retro-labyrinthine. On the other hand, the differentation of circumscribed disease of the labyrinth is doubtful for the reason, as already set forth, that circumscribed lesions may also exhibit a nystagmus to the affected side. In cerebellar abscesses in which a two-stage operation is under consideration, the differentation is simple if during the first operation the labyrinth is destroyed or intra-operative measures are undertaken (fistula-sequestrum) as in these cases nystagmus directed to the diseased side can only be of retro-labyrinthine origin. In extra-dural abscess of the posterior cranial fossa sequestration of the pyramid or, as occasionally occurs after simple mastoid operation in which the inflammation penetrates deeply inwards, we may also observe nystagmus directed to the diseased side. It is much more dif-

ficult and sometimes even impossible to determine the cause of nystagmus directed to the diseased side when the labyrinth of this side still has functioning power. In the investigated cases of cerebellar pontine-angle tumors in recent years, I have observed one phenomenon that may also serve as a differential factor for these cases. If, in such a case, the ear of the healthy side is syringed with cold water, rotary nystagmus to the affected side of marked duration (six to eight minutes) occurs together with an accentuated clonic reaction movement with the tendency to fall to the healthy side. The subjective affections which occur herewith are in no proportion to this intense disturbance of equilibrium. This nystagmus of abnormally long duration I term "duration nystagmus." The explanation for this must be found in the omission of inhibition, for we must note in the above schema that the cerebellum has an inhibitory influence on the primary vestibular end-nucleus. This phenomonen appears to be similar to the patellar clonus and this is also similar to the observation found by Ruttin of excessive irritability.

Of the six cases of cerebellar pontine-angle tumors which I have had an opportunity to examine for these symptoms, I wish especially to refer to the following:

Case 1. Forty-two year old man with evidences of tumor symptoms presented the following otoscopic findings: complete deafness, left; inert vestibular apparatus, left side, nystagmus is principally directed to the affected side while looking to that side; on looking to the healthy side only an oscillating nystagmus of indefinite character is observed. On turning (10x) to either side, I could determine no apparent difference in the duration of the nystagmus. It was a striking fact that when turning to the one side the subjective vertigo and objective reaction phenomona were hardly noticeable, while when turning to the other side a most marked reaction occurred so that it was with extreme difficulty that such an examination was repeated. The left ear by caloric test remained inert, but the caloric test on the healthy side showed rotary nystagmus to the diseased side with accentuated rolling motion of the bulbus and of abnormally long duration.

Case II. The second case briefly is that of a woman with tumor symptoms in which it could not be definitely stated whether the cochlear or the vestibular symptoms appeared first. Tested with the Lärmapparat she showed complete deafness on one side. Weber lateralized to the healthy side (left). Bone conduction substantially shortened and this is uninfluenced by stopping the auditory canal of the diseased side. Duration of tuning fork placed over mastoid is persistently prolonged on closure of auditory canal. High and low tones not heard in the right ear. Marked rhythmic, horizontal nystagmus to the diseased side on looking to the diseased side; on looking to the healthy side only a few rhythmic impulses are noted. Neither with closure of one eye nor by use of test-spectacles is nystagmus accentuated. When the diseased ear is syringed for one minute with cold water it does not alter the spontaneous nystagmus directed to the affected side; neither is there a change to that directed to the healthy side. The vestibular apparatus therefore shows no reaction, when, on the other hand, the healthy

ear is syringed with cold water the patient showed a rotary nystagmus to the diseased side that lasted for six minutes.

"Duration nystagmus" makes possible the differentation of nystagmus directed to the diseased side not only in an inert labyrinth on the diseased side but also where there is still some function of the vestibular apparatus of the diseased side, because circumscribed lessions of the semi-circular canals do not present this phenomonen. It must be observed that in those cases in which a very marked spontaneous nystagmus exists the phenomenon of "duration nystagmus" cannot be entirely free from objection if we do not succeed by use of the visual-fixator to determine the position of the bulb in which the spontaneous nystagmus ends in order that the artificial nystagmus may be correctly estimated.

Modern methods of labyrinth tests make possible not only the differential diagnosis between labyrinthine and retro-labyrinthine selective nystagmus but have also placed us in a position to diagnosticate many forms of labyrinth disease. Soon after we had learned to determine diagnostically the value of artificial nystagmus, it was found that many forms of nystagmus, even when no caloric reaction was elicited, could still be made to respond to mechanical compression—aspiration and turning test. The simultaneous test of the cochlea brought out the fact that this organ still retained functioning remnants even when Weber was still lateralized to the diseased side, bone conduction materially prolonged and when hearing was found to be greatly defective for loud conversation but not completely deaf even with negative results of the caloric test. Closure of the external auditory canal by granulations, cholesteatome and exostoses are also factors in which caloric tests may appear negative. These cases, however, should not be considered here; only those in which a disturbance of the lympho-kinetic apparatus as withdrawal of endo-lymph, plastic changes in the semi-circular canals or alterations in the consistency of the endo-lymph should be considered the cause for the negative absence of the caloric test where turning reaction is still retained and even more often increased. If the labyrinth capsule is defective we still find in the above outlined cochlear record and negative absence of caloric test that compression nystagmus may still be developed. The so-called labyrinthitis simplex will present these phenomena when the inflammation in the labyrinth has not developed to the extent of complete destruction of this organ. It is of eminently practical significance in determining the indications for the labyrinth opeation whether this organ is completely des-

troyed or not for if not completely destroyed there is always the possibility of restitution.

On the other hand, I had an opportunity in another group of non-inflammatory diseases of the labyrinth to observe just the opposite condition of vestibular sensibility. Caloric reaction was still present in this group of cases, but by the turning test no nystagmus could be determined. This reverse reaction of vestibular irritability I have observed principally in individuals with hereditary lues at a time when the hearing had not been entirely destoyed and also where a non-inflammatory middle ear process (chronic adhesions; oto-scleresis) extended to the labyrinth and showed in a certain stage of progression a refractory relation to the turning reaction while the caloric excitability, even though reduced, was still present. In these cases I would be inclined, because of this relation of the vestibular apparatus, to conclude that the fluid contents were intact but that at the same time the nerve-ends or the nerve itself had been injured.

I had frequent opportunities to demonstrate such cases in the Austrian Otological Society where hereditary luetic individuals were in that stage of the disease in which labyrinth function had not been completely destroyed. I was of the opinion that this would explain the fact that caloric stimulation with intact lympho-kinetic apparatus is more effective than a physiologically adequate turning stimulus; that in this stage of the affection the physiological stimulus was no longer adequate to develop the nystagmus reflex; on the other hand the caloric stimulus could still be produced even though in diminished form. It is a fact that only those cases present this phenomenon negative in which the affection is a bilateral one, for in unilateral cases the turning nystagmus may still be determined on both sides by means of the healthy ear. The caloric stimulus is more effective because spontaneous nystagmus is either slightly or not at all influenced by turning while caloric stimulus still distinctly develops such nystagmus.

We note therefore that not only spontaneous but also artificial nystagmus depends for its diagnostic significance not only on the differential diagnosis between diseases of the labyrinth and retro-labyrinthine affections but also on the important data for differentiation of the several forms of labyrinth diseases: It makes possible the differentiation between diseases of the lympho-kinetic apparatus and the nerve portion of the labyrinth.

ALTERATIONS OF ORIENTATION IN LABYRINTH LESIONS AND OF THE CENTRAL NERVOUS SYSTEM.

PROF. F. LASAGNA, Parma, Italy.

De Cyon affirmed the following principle: Sensations derived from stimulation of the nerve-terminals of the semi-circular canals are sensations of direction, both in man and in the higher mammalia, and are of primordial orgin. (The number of these sensations is also primordial.)

We recognize only three fundamental directions, viz: horizontal, vertical and antero-posterior.

A semicircular canal corresponds to each of these specific sensations of direction.

The perception of direction, especially of selected direction, precedes all other movement.

The exact orientation in the three planes of space, that is to say, the choice of direction, in which the movement and co-ordination of the canal of inervation takes place, is the specific function of the semicircular canals.

The sensations derived from the stimulation of the canals are sensations of direction. Animals, that possess only two pair of canals, can "orient" themselves only in two directions; those that have one pair, only in one direction.

De Cyon's experiments with the human labyrinth led him to these conclusions:

First. The constant mistake in determining the direction, manifested in the dark, during the rotations of the head, depends upon the change of the planes of the three canals.

Second. The most frequent errors, in the rotations of the head, are those in the horizontal direction.

Third. The frequency of errors in direction seems to be altogether independent of the nature of the stimulus.

In numerous researches de Cyon showed that the normal function of the non-acoustic labyrinth is orientation; von Stein has devised methods of investigation for static and dynamic orientation regarding the labyrinth which are briefly:

Static Orientation:

(a) Examination while standing on the ground with feet together —(1) on the toes of both feet; (2) on the sole of one foot.

(b) Examination with the goniometer of von Stein with the tip of the toes downwards, or resting on the ground with toes up and the outer ridge of the foot downward.

(c) Orientation of the head and body with a stick in regard to the vertical or to the horizontal plane.

DYNAMIC ORIENTATION.

(a) Dynamics of the lower extremities: (1) marching forward and backward on both feet; (2) jumping forward and backward on the tip of toes, and (3) jumping on the ground with both feet, to the right and to the left; (4) turning completely around with closed or open eyes.

(b) Dynamics of the upper extremities. Using such systems of investigation, von Stein was able to establish in the non-acoustic labyrinth experiments static and dynamic orientation.

In the static experiments with eyes closed the patient falls, or is unsteady, while standing on one foot or on two, varying with the severity of the lesion.

With the goniometer the patient oscillates without falling.

In dynamic experiments the patient has a tendency to keep his legs apart and vacillates either to one side or to the other; if he has labyrinthine lesions it is unilateral; if the patient is not able to compensate, he inclines more to the diseased side.

Exaggerated stimulation of the labyrinth may cause the patient to fall on the diseased side; destruction of the labyrinth produces uncertainty in standing and in walking, especially with eyes closed.

In rapid and bilateral destruction of the labyrinth we first notice a complete disorientation, as the patient can neither stand upright nor move a step, but gradually orientation returns to normal by a compensation of the muscular system.

Recent experimental clinical research have demonstrated the functions of orientation of the non-acoustic labyrinth and the changes in orientation conform to the changes in the labyrinth.

During the world war, other phenomena of disorientation were often discovered due to deep wounds of the frontal lobe, especially observed in the researches of Pierre Marie and Béhague.

This new syndrome is of special interest to those who study labyrinthe lesions, as it may also cause alterations of orientation. I have also had occasion to study one of these cases of lesions in the frontal lobe; I could thus observe the two syndromes in order to come to conclusions useful for our researches.

The cases of Pierre Marie are as follows:

Case 1. Patient dares not leave his ward alone, and when in the court yard he cannot find his dormitory; he cannot turn to the right or left. During the night the phenomena are more evident.

Case 2. The patient walks aimlessly to get to a certain spot, but never reaches it.

Case 3. If the patient turns around, even once, he loses all orientation.

Case 4. When the patient goes out in the dark, even in places known to him, he loses all sense of locality. Lying down in bed, with his eyes shut, he has no sense of direction.

Pierre Marie was, however, often obliged to subject the patient with a frontal wound to tests: He placed the patient bandaged in a dark room and made him turn first to the right, then to the left, stopping him before a wall of the room; the patient never knew where he was, a thing that never happens in a normal state, or to a person wounded in other parts of the head.

Pierre Marie thus established that changes of orientation are associated with deep lesions of the frontal lobe and the phenomena of disorientation are more or less serious, according to the depth of the wound, and also irrespective whether right, left or bilateral in location.

Pierre Marie also found the normal caloric reaction of Barany and of the Voltaic vertigo; a normal muscle sense of balance and no tendency to fall with eyes shut; normal memory. Rare epileptic conditions.

He explains the phenomenon as that of a lesion of the associated fibres that start from this lobe and are distributed to the different parts of the brain, specially to the rolandic, occipital and temporal zones, forming the angulus and the unciformis. When the latter is wounded there is a total disorientation.

To the observations of Pierre Marie, I can add those which I noted myself in the case of a soldier during the war and which contain interesting data.

A. R., aged 32, a soldier, wounded in the head two years ago by a piece of shrapnel; he lost consciousness immediately and remained unconscious for some days. The bone over the right fronto-parietal region was found destroyed and depressed and splintered for a length of six cm. and a width of about five cm., with a sloughing of the cortical portion and a bad laceration of the meninges, but no motor or sensory changes.

The patient was operated, the splintered bone fragment, sloughed cortex and injured part of the meninges removed. After three

months the operated area healed with intact cutaneous covering, but with permanent depression.

He showed no psychological changes, motor or sensory disturbances or convulsions. The only functional change experienced by the patient from the outset was in orientation—lying in bed at the end of a ward he could not make out whether the wall was on the right or on the left side.

Returning from the treatment room he went to the right instead of the left. Walking in the court yard, where there were many doors, he entered the wrong door.

At night his mistakes in orientation were still more marked; in trying to get to a fixed point he often turned around and failed to reach it.

When he entered our medical division I carefully studied the man and found his wound apparently completely closed; the radiograph showed a loss of bone substance; the general examination did not show any sensory or motor disturbances.

When taken into a large square porticoed court yard, and directed to return to his ward, he generally went toward a door which led to another yard and not to his ward; when taken about a garden for some time and told to find his way out he again went in a wrong direction.

When placed in a dark room he was unable to locate familiar pieces of furniture near the walls. This test was repeated and his lack of orientation was always evident.

The acoustic and non-acoustic labyrinthe tests showed completely normal static and dynamic orientation.

In my case also, therefore, the patient with a deep wound in the frontal lobe and extensive cortical and medullary destruction definitely exhibited the syndrome of disorientation. This syndrome is evidently of importance to otologists when combined with findings in the non-acoustic labyrinth and with labyrinthine alterations.

Until now it has been claimed that the sense of orientation in space was exclusively in conjunction with the functions of the semi-circular canals.

This new syndrome of Pierre Marie, confirmed by my case, modifies our views on this subject.

So, if injuries to the frontal lobe present changes of orientation it is evident that they possess functions independent of the semicircular canals. On the other hand, if in such lesions there are modifications in the static or dynamic orientation we must also conclude that the frontal lobe does not possess these functions.

So, from the combination of these functions of the frontal lobe and of the non-acoustic labyrinth in normal and pathological conditions it has been proven that the semi-circular canals have the selective function of static and dynamic orientation and together with the frontal lobes the sense of orientation in space; that the frontal lobe alone has not the function of static and dynamic orientation.

It will, however also be necessary for our otologic information to complete these clinical researches with further observations so as to establish with greater accuracy in what part of the frontal lobes this important orientation-sense is located.

REPORT OF A CASE OF PERITONSILLAR ABSCESS FOLLOWED BY PHLEBITIS OF INTERNAL JUGULAR VEIN.

Dr. J. C. Kirby, Boston, Mass.

The following short article bears relation to a recent description of peritonsillar abscess followed by sinus-thrombosis, written by Dr. Harris P. Mosher, who laid stress on the earlier operative diagnosis of such cases.

Patient, adult female, 54 years of age. She complained three weeks before of a sore throat and her physician noticed that the right tonsil fossa bulged slightly into the pharynx. She gave every evidence of beginning peritonsillar abscess. She did not desire to have any treatment for it, because her previous attacks of tonsilitis had subsided and she hoped that the present condition would do the same. Her throat, however, never felt entirely well. In the course of two weeks' time she caught cold and the condition in the throat recurred with increased severity. The pain this time seemed to be more deeply situated and there was stiffness and soreness on the right side of the neck. Slight, if any, swelling was noticed. She was examined by her physician who advised that she enter a hospital. The temperature

on entrance was 103°, pulse 110, respiration 20. Ice compresses were applied and regular medical treatment given.

The next morning her temperature was 99°, pulse and respiration the same as previously mentioned. That afternoon her temperature was 104°, pulse 115, respiration 20. In the evening she had a chill. The neck became a little more painful and there was a little induration along the inner side of the stern-mastoid muscle. There was no fluctuation. The patient felt very sick.

The examination on the third day was as follows:—Nose—nothing abnormal, septum fairly straight.

Ears—negative. Throat—tonisls large and creptic, with no marked difference in size. The right tonsil was very tender on palpitation. Pharynx—congested throughout. Larynx—negative; no oedema present. No masses were felt on palpitation of the floor of the mouth or at the base of the tongue. Externally there was a slight amount of induration along the inner side of the sterno-mastoid muscle, extending towards the angle of the jaw on the right side. This was very tender but it did not fluctuate.

Operation:—An incision was made along the inner border of the sterno-mastoid muscle, muscle retracted and the caroted sheath exposed. At the junction of the facial vein with the internal jugular there was a small mass about the size of a twenty-five cent piece. This was explored and found to be full of pus. On the outer border of the vein a small gland the size of a pea extruded pus. The operation was completed by placing a drain in the abscess cavity. The after treatment was that of the ordinary character: hot applications were applied, changing of drains. The patient was discharged well at the end of the eighth day.

FIBRO-LIPOMATA OF THE MEMBRANA TYMPANI—CASE REPORT.

Dr. Earl Vernon, Chicago, Ill.

Reviewing literature on the subject of pathological conditions of the membrana tympani, I am led to believe that fibrolipomata of this organ is rarely seen. And in talking with men in this specialty, have not found any who have seen a case, a fact that would tend to strengthen my belief. I, too, have never before seen a case like the one to be related.

Reviewing the anatomy of the membrana tympani, it will be readily seen how fibrolipomata of this organ may occur and one is surprised at the lack of reports in the literature, if they are common

Anatomy: The membrana tympani is composed of three layers: an external (cuticular), a middle (fibrous), and an internal or mucous layer.

The cuticular layer is derived from the integument lining the external auditory meatus. The fibrous or middle layer (membrana propria) consists of two strata: external or radiating fibers (stratum radium), which diverge from the handle of the malleus, and internal or cuticular fibers (stratum circulare), which are plentiful around the circumference, but sparse and scattered near the center of the membrane.

The inner or epithelial layer is mucous membrane (stratum mucosum), which is a portion of the mucous membrane of the drum cavity. (Gray).

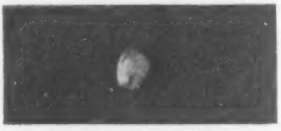
The epithelium or outer layer of the drum membrane is easily separated from the underlying fibrous one, as is frequently shown by its early perforation when the drum membrane is the seat of inflammation. This fact can also be demonstrated clinically by the use of extreme forced suction on a normal ear drum, producing, as a result, separation of the outer layer from the middle one forming a hematoma or a bleb.

Case: Mr. C., age 35, farm advisor; family history negative, especially as to hearing. Personal history always healthy until 1919, contracted influenza with severe ear complications of acute suppurative otitis media in each ear, discharge from the ears lasting for about four months. He claims to have had no trouble in either ear from that time until about four weeks previous to consulting me on July 7, this year. He then came with the history that during the past three or four weeks he has had occasional slight warnings of pain in the left ear, not severe or continuous. He was, there-

fore, not alarmed, but as a matter of precaution, came to learn as to whether or not there was any trouble present.

Examination: Hearing: Various tuning fork tests, watch test and whispered and spoken voice showed hearing in that ear to be quite normal, notwithstanding the fact that the Weber seemed to have a tendency to lateralize to the left ear.

Inspection: Inspection showed nothing pathological externally and manipulation of the auricle gave no suggestion as to the condition. The drum membrane was easily seen without a speculum, the external auditory canal being reasonably large. An elevated, circumscribed, smooth, round, whitish appearing tumor-like mass could be seen to project prominently outward from the membrana tympani at the juncture of the short process of the malleus with the anterior fold, it being below the fold and anterior to the malleus. Further inspection with aural specula and the use of Siegel's otoscope actually verified its location and appearance. The membrane was quiescent, no perforation seen and none elicited on Valsalva. No



debris were in the external auditory canal, indicative of any previous recent active inflammation of the nature of erosions or suppuration.

Conclusions: I, therefore, concluded that I had to deal with a non-inflammatory, non-suppurative, non-malignant, pathological process with the probability pointing to its being a lipomata of the membrana tympani.

Removal: Without anesthesia, careful incision was made from above downward across the mass without bleeding. It was necessary to enlarge the size of the wound, my first opening not being large enough to permit the tumor to come away.

By the use of the hook I was able to lift the tumor from its bed and deliver it with the loss of only four or five drops of blood.

I might say that the appearance of the tumor in the ear showed it to be about the size of an ordinary pea. Looking at it with Siegel's otoscope, of course, it looked much larger, but after removal it was actually no larger than a small pea. Microscopic examination showed that it had all of the characteristics and properties of a fibrolipoma.

7 West Madison Street.

OTIOBIOSIS (EAR TICK DISEASE).

Dr. Noxon Toomey, St. Louis, Mo.

The natives and early colonists of Mexico were the first to become familiar with tick infestation of the ears. The ear ticks were not, however, recognized as belonging to a distinct species. They were described along with the other ticks found on man, under the primitive name *Ixodes hominis,* Koch, 1844.[1] [2] Special attention, for the first time, was drawn to the ear tick, in the manuscript reports of the French surgeons and veterinarians who accompanied the French army that invaded Mexico in 1864. The horses of the expedition were frequently infested, and not a few cases occurred among the soldiers. The first instance of the infestation of man, to appear in print, was recorded by Guérin in 1867.[3] The ear tick was not, however, recognized as a separate species before the appearance, in 1883, of Alfred Dugès technical description of the tick.[4] Dugès named the ear tick *Argas Mégnini,* in honor of his former teacher, Professor P. Mégnin, of Paris. A new description with illustrations of the tick was published by Mégnin,[5] based upon specimens sent to him from Mexico by Dugès. The life history of the parasite was first described by Hooker in 1908.[14]

Etiology. The tick that normally invades the ears of cattle and man, the "spinose ear tick," is an ectoparasite belonging to the family *Argasidae.* It is no longer considered a species of the genus *Ornithodoros,* as it was made the type species of a new genus by Banks in 1908.[16] Its proper technical name is now *Otiobius megnini* (Dugès, 1883), Banks, 1908.

O. megnini ranges throughout Mexico and the states of the Union along the Mexican border. In Mexico the state of Guanajuato is said to be most heavily infested; in the United States, Arizona, New Mexico and Texas are most heavily infested. It is also established in Louisiana, part of Nevada and the southern portion of California.

This parasite has been reported from Idaho, Nebraska, Kansas, Iowa and Kentucky, probably due to infested cattle having been shipped into those states from the endemic area. It is not likely to obtain a permanent foothold in the latter states.

There is no well marked seasonal prevalence; though, in Mexico, it is said that ear ticks are found more frequently in the dry, hot seasons.

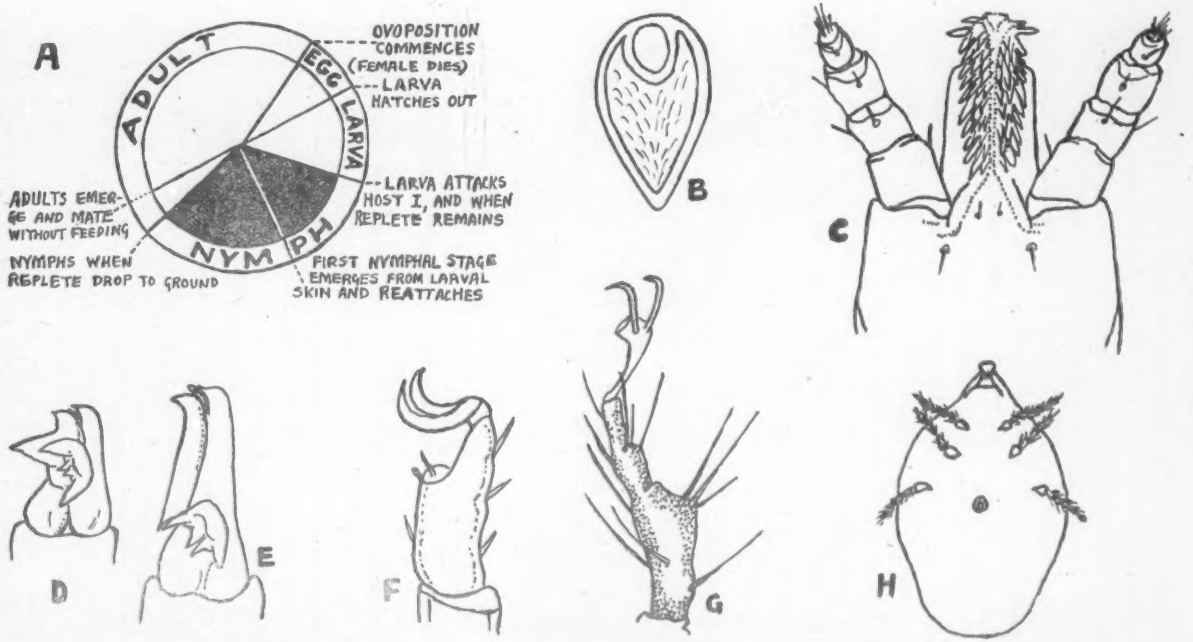


Fig. 1. A, life cycle of *O. megnini*: B, stigmatum; C, capitulum of nymph, ventral aspect; D, chelicera of nymph; E, chelicera of female; F, adult tarsus of first legs (after Megnin); G, larval tarsus of first legs; H, gorged larva—so-called resting, pupal or pre-nymphal stage. C, G, and H after Salmon and Stiles; D and E after Nuttall and Warburton.)

Parasitology. The primitive hosts are the wild mammals of the tropical and subtropical prairies, particularly the hares and gophers. Among the domesticated animals those most infested are beef cattle and sheep. Horses, asses and dogs are less frequently attacked.

Excepting *Rhipicephalus bursa* and *R. evertsi,* the life history of *O. megnini* is unique amongst the Ixodoidea in that only one moult (larva to nymph) takes place upon the host and the nymph stores up enough food to make it unnecessary for the adult to feed before fertilization and ovoposition take place. *R. bursa* and *R. evertsi* have the same life history (see Fig. 1a).

The first or larval stage is very active. It is in this stage that the tick enters the ear. Having gained entrance to the ear, they penetrate deep down the canal and bury themselves between the folds of skin. After gorging themselves for six or seven days (the

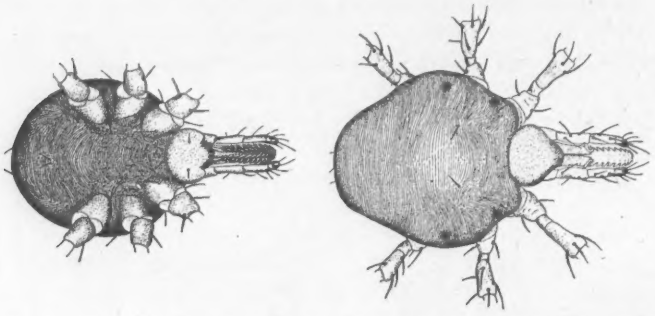


Fig. 2. *O. megnini*, larva, dorsal and ventral aspects (from Salmon and Stiles)

extremes being five to twelve days) they moult into the nymphal stage. The nymph continues to feed for several weeks and sometimes for months (31 to over 200 days). The nymph leaves the ear in from one to four months, depending upon the season, and then buries itself in the ground or in crevices of trees, posts, barns, etc. After about seven days in mid-summer or early autumn, they shed a membranous skin and appear as adults without spines. Fertilization then takes place and ovoposition commences. The eggs are often deposited on the ground. Hooker believes the fertalized female to be negatively geotropic, as he noticed that they crawled up posts, shrubs, etc., and deposited their eggs on such objects at about the level of the beef's head when in the act of grazing. This tropism he correlates with the parasitic activities of the larvum, and considers it an acquired mechanism favoring access to the ears of cattle.

After ovoposition is completed the female dies. Eggs are not laid by unfertalized females; the latter may live for at least twelve months and possibly much longer. Mégnin states that he kept some *O. megnini* alive for two years without feeding. Hooker believes that the adults probably never feed. This view gains support from the fact that the adult capitulum is very small and that the hypostome is unarmed.

In hot weather the egg hatches into the larvum in as short a time as eleven days, but in more temperate weather two or three weeks are required. The young larvum enters an ear of an animal or man

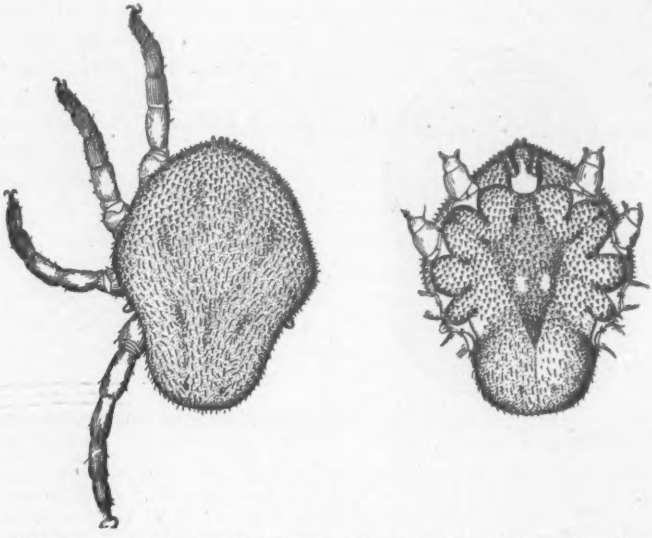


Fig. 3. *O. megnini*, unfed nymph, dorsal and ventral aspects (from Marx).

at the first opportunity. They may, however, live for three months without feeding.

Robledo[17] states that *O. megnini* may transmit relapsing fever. The same statement occurs in Doflein's *"Lehrbuch der Protozoenkunde"* (page 817), but has not otherwise been confirmed.

Description of the Parasite: This tick is remarkable for the difference in appearance between the spiny nymphal form and the adult stage.

The *larva* is an elongate ovopyriform hexapod, with a long terminal capitellum; it measures 0.6 mm. from tip of hypostome to posterior ex-

tremity, but gorged larvae attain to 4. x 2. mm., and are then nearly oval. The integument is finely striated with symmetrically arranged pits, from which bristle-like hairs issue. The unengorged larva is white, the gorged larva is violet brown. Capitulum: hypostome 2|2, almost as long as palps; palps: articles 2 and 3 equal, 1 and 4 short; large pits in intercoxal spaces 1 and 2. Pulvillum small.

The *nymphal stage* is covered with spines, hence the popular name. The body is lozenge-shaped, slightly longer than broad, rounded anterior to third legs, suddenly contracted posterior to them; 3 to 4 mm. long when unfed; gorged stage measures 5.5 x 8.5 mm. Color, unfed, earthy yellow; replete, violet brown. Integument, both ventrally and dorsally, is beset with posteriorly directed spines or bristly hairs; the dorsal spines are crowded and form a crescentic area anteriorly with horns extending posteriorly to legs 3; the rest covered by bristly hairs; ventrally the spines extend to the anus. Integument finely striated, pits absent. Anus transverse, very small. Capitulum subterminal in first-stage nymphs, in-

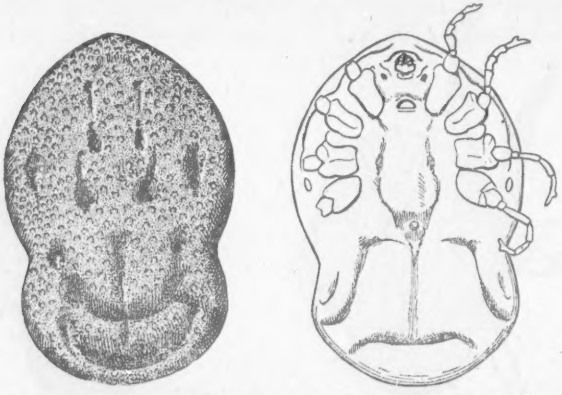


Fig. 4. *O. megnini*, male, dorsum and ventral aspects (from Nuttall and Warburton).

ferior in later stage nymphs, elongate, base as long as palps; hypostome lanceolate, dentition 4|4, with 7 to 9 teeth per file; palps thick with a few simple hairs; chelicerae (see Fig. 1,d). Legs long and strong; coxae almost marginal, short but broad; joints cylindrical, relatively short, terminal portion elongate, claws strong, pulvillum absent, hairs scanty.

The adult body is panduriform, being broadest at level of third legs, and suddenly contracted behind fourth pair. Eyes absent. Integument with small circular, shallow pits with short central hairs, the whole surface being finely granular. On the ventral surface, between the two post-anal grooves, extremely small and crowded spines. Pre-anal groove absent. Capitulum is very small and short; hypostome short, broad basally, rounded distally, unarmed. Palps thick, joints relatively broad and short. Legs comparatively thinner and shorter than in nymph. For chelicerae and other details, see Fig. 1, e-f. Color brownish violet or black. Size: female, 5. to 7. mm. long by 3.5 to 4.5 mm. wide, males somewhat smaller.

The eggs are large and dark brown.

The Ear Lesion in Man. It is seldom that more than one or two ticks are found in any single human ear. The tick or ticks are

almost invariably found resting in the lumen of the bony portion of the canal. The tick removed by Simpson had been found spread out over the tympanic membrane. The ear tick does not imbed its rostrum into the epidermis nearly so tenaceously as does the dog or wood tick, *Ixodes ricinus,* and related species. Compared with insect infestations of the ear, surprisingly little cerumen is secreted as a result of the presence of the invader in the ear, though an increased amount is invariably noticed. In one of the ears of the patient reported by Simpson,[11] the canal was practically occluded by cerumen. Subjective symptoms are often very slight and infrequent, as a result of which the presence of the tick may go unnoticed for several weeks. Besides the common feeling of fullness, the other sensations are described as of a tickling or ringing quality rather than the frank scratching felt after a beetle has crawled down the canal. Throbbing may occur, but is not so frequent as in invasions of the canal by larvae. Likewise, dizziness and nausea are not so common as in myiasis. Excruciating pain may occur at times. Bleeding never occurs. It seems likely that the tick secretes an exotoxin that has a slight keratolytic effect. Damage to the skin of the canal is slight when the infestation has lasted for only four or five weeks. Most cases of longer duration are, however, complicated by secondary mycotic invasion—more frequently by the saprophytic moulds than by the penetrating fungi. In time a chronic eczematoid dermatitis results. Furunculosis or cellulitis are not common complications.

When serving as a medical officer with the National Guard of Pennsylvania, while the latter was stationed at Camp Stewart, near El Paso, Texas, during 1916, I removed an ear tick from one of the men of the Fourth Inf., Pa. N. G. The tick was found incidental to the removal of impacted cerumen. Though the cerumen was syringed away by use of a small urethral (pee) syring, the only instrument available, the tick could not be dislodged by use of so small a syringe. After the canal was cleared, I introduced a probe tipped with cotton wool soaked in chloroform. After three minutes had elapsed, I was able to joggle the tick out of the ear without scratching the canal. The tick proved to be a young nymph of *Otiobius megnini.* It probably had been in the ear some six or seven weeks and had produced no other disturbance except a slight itching deep in the canal. An excellent illumination of the canal was obtained by reflecting sunlight from a large concave dental mirror held in the left hand, retraction of the auricle being maintained by an orderly.

I am indebted to Dr. Fernando L. Arguelles of El Paso, for showing me five ear ticks that he had removed from three Mexicans. Two of the patients had had two ticks each. Only one of the patients had an eczema as a sequel.

Though other mites may occasionally be found in the ears of animals, they have not been especially noted in the ears of man.

The inexperienced may mistake the six legged larva for a beetle. The beetles usually found in the human ear canal may in a popular way be described as six-legged, relatively very much narrower than the larval ear tick, and with longer, more jointed legs, free from hairs; their mouth parts are much smaller, and the body surface is apt to be more convex and shinier.

Treatment. Cause the tick to release its hold on the canal by narcotizing it with chloroform vapor introduced into the canal on a cotton wound probe. It may then easily be removed by syringing the canal. Chloroform or ether not being available, one should instill liquid petrolatum or any bland oil into the canal. These instillations close the breathing pores of the tick and cause it to release its hold. After two or three minutes it may be removed by aural forceps or syringing. The tick, if not dead, should be killed by crushing or prolonged exposure to chloroform vapor. A complicating eczematoid dermatitis is almost invariably mycotic in origin and is best treated with an ointment containing salicylic acid and benzoic acid, three per cent each, in any neutral base.

The Treatment of Animals. Owing to the position occupied by the ticks on the host, the dipping of live stock in the ordinary tickcides will not reach and destroy the ear tick. Hence each animal must be treated separately. Only local treatment is of any avail. Good results are ordinarily secured by flooding the ear with a half ounce of crude petroleum or pine tar cut down with half the amount of cotton seed oil. Carbolated olive oil or linseed oil, as recommended by some, are unwarrantedly expensive. These instillations cause the ticks to release their hold; the oil having entered their breathing pores and caused a partial asphyxia. The ticks may then be scraped out of the ear. The best instrument for removing the ticks is a straight probe made of bailing wire, six inches long with a loop a half inch long by a quarter inch wide at one end. The ticks should be killed by crushing or dropping in kerosene. The tar-oil mixture should we well worked into the ear by manual manipulation; it will then protect the ear from reinfestation for about a month. The cattle are best handled by running them through a branding chute or dehorning chute with squeeze gates.[21]

Prophylaxis. An ineradicable reservoir of ear tick infestation is found among the wild mammals of the sub-tropical prairies. Infestation of cattle may be prevented by instilling the pine tar-cotton-seed oil mixture into the ears once monthly.

Man is probably most frequently infested during the tropical sand storms. Obturators of cotton wool would hence be of some value. Persons who are exposed to horses or cattle that are infested with ear ticks, or to sand storms, should have their ear canals inspected by a surgeon every three or four months. The following is quoted from Pierce:[23]

"We should be familiar with this tick since a considerable part of our military activities in this country have been and will probably continue to be in the Southwest where the species abounds. It is probable that by exercising some care in locating camps and in choosing places for sleeping, some degree of immunity from attack will result. The seed ticks are, of course, concentrated about feed lots, corrals and watering places of live stock and these should be avoided in choosing a camp site."

Synonyms: Ear Tick Disease, the Spinose Ear Tick; Spanish: *las garrapatas;* French: *les garrapates.*

Zoologic taxonomy: *Ixodes humanus*, Koch, 1844 (pro parte), invalid for specific name; *Argas megnini*, Dugès, 1883; *Argas americana* (*olim* Packard, 1878), Townsend, 1893, in error for *Argas persicus; Rhynchoprion spinosum*, Marx, 1895; *Ornithodoros megnini*, Neumann, 1896; *Ornithodorus* (*sic*) *megnini*, Amberg, 1910, in error.

LITERATURE.

1. Koch: Arch. f. Naturgeschte, 1844, 10:217-239.
2. Moquin-Tandon: Zoologie médicale, 1860, p. 279.
3. Guerin: Bull. de la soc. de chir., 1867 (2), 8:444-445.
4. Duges: La naturaleza, Mexico City. 1883. 5:195.
5. Megnin: J. de l'anat. et de la physiol., 1885, 21:472-475. Pl. XXI.
6. Blanchard: Traité de zool. méd., 1890, Vol. II, p. 338-339.
7. Townsend: Jour. N. Y. Entom. Soc., 1893, I (2), 49-52.
8. Marx: Proceed. Entom. Soc. of Wash., 3:195-201.
9. Stiles and Hassal: U. S. Dept. of Agric., Bureau of Animal Industry, Circular No. 34, 1901, 2 pp.
10. Salmon and Stiles: 17th Ann. Rep., Bur. Animal Industry, U. S. Dept. of Agric., 1901, pp. 410-411.
11. Simpson (and Wheler): The Lancet, 1901, 1 1197-1198. 3 fig.
12. Wheler: Jour. Queckett Microscop. Club., 1901 (2), 8:61-62. 2 fig.
13. Theobald *in* Braun: Animal Parasites of Man, 1906, p. 374.
14. Hooker: Jour. Econ. Entomol., 1908, 1:34-51.
15. Nuttall and Warburton: Ticks. A Monograph of the Ixodoidea. Cambridge. 1908, Part I, 71-77, 103-104; 1911, Part II, 330-331. Illus.
16. Banks: U. S. Dept. of Agric., Bur. of Entom., Tech. Ser. No. 15, 1908, 61 pp., 10 pl.
17. Robledo: Bull. de la soc. exot., 3:117,
18. Amberg: Arch. f. Ohrenheilk., 82:273-274; *abst.* Monatsh f. Ohren. 1910, 45 (1), 70.
19. Ewing: Trans. Acad. of Sci. of St. Louis, 1912, 21:1-70.
20. Herms: Medical and Veterinary Entomology. 1915, pp. 328-329. Illus.
21. Imes: U. S. Dept. of Agric., Farmers' Bull. No. 980, 1918, pp. 3-8. Illus.
22. Underhill: Parasites and Parasitosis of Domestic Animals. N. Y., Macmillan. 1920, pp. 140-141. Illus.
23. Pierce: Sanitary Entomology. Boston, Badger. 1921, pp. 424-426, 433-434, 444-445. Illus.

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EPIPHORA AFTER EXTIRPATION OF LACRIMAL SAC.*

Dr. John J. Gilbert, Providence, R. I.

Epiphora is the most common sign and the most distressing symptom of infections of the lacrimal sac. Hence, its persistence following extirpation of the lacrimal sac is disconcerting. This operation has been the one of choice in removing a hazardous infection, as far as vision was concerned. Investigation proves that in a majority of cases, so treated, epiphora persists and continues to be a troublesome factor.

Ophthalmologists, who are firm adherents of this operation, have contended that on removal of the purulent focus, little or no epiphora remained, since the reflex cause of stimulation of tears had been removed, or that there was a rapid decrease in the amount of epiphora as a result of an atrophy of the lacrimal gland, which followed the removal of the sac in toto, etc.

To get some data on the persistence of the epiphora after cystectomy, I sent for cases operated upon at the Massachusetts Charitable Eye and Ear Infirmary. I examined these cases personally, and selected 45 for study. These cases were those that presented no operative, or post-operative complications, such as fistula, or any form of suppuration, leaving as a basis of this report clean, healed examples of complete removal of the sac. My examinations were made in November, 1920. The cases included those operated upon for mucocele and stenosis following the abscess forms.

Of this group of 45 cases, 13 were operated upon up to June, 1919. Four of these got a moderate amount of relief from epiphora and were satisfied. The remaining cases got slight relief. When exposed to the wind, cold and after prolonged use of the eyes, the epiphora was made worse. In 3 cases the use of glasses proved troublesome. Seven of these cases were dissatisfied and were willing to undergo further surgical procedures for relief from epiphora.

Sixteen cases were taken from the cases operated in 1918. Four obtained good results. These began to improve about one year after operation and the patients were satisfied with the final results. In each of these cases there was a moderate epiphora, requiring from 6 to 8 wipings a day while indoors, and slightly more outside; pools

*From the clinic of Massachusetts Charitable Eye and Ear Infirmary.

of tears collected at the inner canthus and were ready to run over the cheeks from time to time. In 10 cases the results were poor. Everyone declared there was little difference since operation. The number of wipings estimated was from 50 upward for a day. They were dissatisfied and were among those willing to undergo further surgical procedure for relief. Four of the cases attempted to wear glasses, but experienced difficulty on account of the moisture getting on the lenses, and the need of wiping away the tears frequently.

In 1917 I have notes of 8 cases. Of these, one stood out as being unrelieved since operation and the patient's opinion on this was expressed as follows: "I wipe tears from my eye continually." It seemed as bad indoors as outside. She would not estimate the number of times she wiped her eye daily, but thought it was well over 75 times. The eye was amblyopic, and so she did not note any great interference with vision. On examination, tears collected rapidly and the patient wiped them away just as they seemed ready to flow over the cheek. Two cases were moderately relieved after a year. All, at the time of examination, showed moderate epiphora, which meant wiping away tears a few times during the examination. This was increased in cold weather, wind and while reading. They felt that the operation did not relieve the epiphora satisfactorily.

Six cases were operated upon in 1916. For about a year the relief in all cases was slight. Improvement continued slowly after that time. In 2 cases there had been considerable relief, so that at the present time there was slight epiphora only, not enough to flow over the cheeks during examination. There seemed to be no interference with vision because of it, It was necessary to wipe away the tears 6 to 8 times a day. Both of these patients were satisfied with the results. The other 4, however, presented a decidedly different condition; one continued to have a moderate epiphora after a year and claimed there was little relief. Thirty to forty wipings a day were required. Wiping her eyes had become a habit with her, and she did not realize that she had wiped her eye freely while being interviewed, yet she did so 3 times in 30 minutes required for history and examination. There was a traumatic dermatitis extending down over the cheek from irritation of tears and wiping. This she described as of frequent occurrence, especially during cold weather, when the epiphora was markedly increased. The other 3 cases of the group seemed moderately relieved. They claimed tears ran over the cheeks in the cold or windy weather. One case, a myope, wore glasses, which she needed because of poor vision. She complained that she was annoyed greatly, because it was necessary to

take the glasses off frequently to wipe moisture from them, or to wipe the eye. If the tears were allowed to remain they blurred or magnified and distorted objects. When she closed her lids to force out the excess of tears the glasses were speckled with moisture and had to be removed and cleansed.

There was one case operated in 1915. The epiphora was as marked as before operation for about a year. Improvement had been slow since then, until at the time of examination there remained a moderate epiphora. This was troublesome outside, but it did not interfere with work greatly. On examination, there was a collection of tears at the inner canthus, which seemed ready to overflow. This happened 2 times during the interview.

The oldest case was of 8 years duration. Like the preceding one, there was no appreciable relief to the patient for over 2 years. Then he felt it had improved, or that he "had gotten used to it." At the present time he was troubled in the cold weather. The condition was not made worse by reading and while inside he was comfortable. No improvement has been noted for the past few years. Glasses were worn and these "steamed up" from the moisture from the eye at times. Examination showed a fairly good result. There was a small pool of tears at the inner canthus, not enough, however, to cause wiping.

SUMMARY.

From this study of 45 cases there was not a case free from epiphora 1½ years after cystectomy.

In about 50 per cent of cases the epiphora persisted 2 to 5 years.

In the majority of cases the epiphora was severe and was made worse by the wind, cold and prolonged use of the eyes.

In most cases the patients denied relief from the tears and were willing to undergo further surgery for relief.

CONCLUSION.

These results indicate that the operation of cystectomy, while of great value in removing a source of infection, leaves a troublesome epiphora in most cases.

221 Thayer St.

THE EARLY STAGES OF HYPERPLASTIC ETHMOIDITIS (LARVAL ETHMOIDITIS).

DR. SAMUEL MCCULLAGH, New York.

The onset of this disease is so gradual and insidious and its symptomatology so slight and indefinite that in the history taking of a fully developed case it is generally difficult or impossible to assign a definite date of onset.

While it may be impossible to demonstrate these cases beyond controversy in their incipiency, the existence of beginning changes in this region can be assumed with a degree of assurance amounting almost to certainty in selected cases.

The answer to the question—"When is ethmoiditis?" has never been clear-cut. In what group of symptoms and at what period of their development is the term ethmoiditis justified? It is difficult to conceive of any acute or chronic affection of the nasal mucosa which is not reflected, duplicated or exaggerated in the lining of these cells. The fact that this disease is practically always an associated one and that it may be overshadowed by the accompanying condition, whether extra or intra-nasal; that it may be checked at any stage of its development, though retaining its potentialities for mischief, and that in the ordinary course of events its symptoms may be only of the annoying variety, may explain why its presence in the early stages has been so consistently overlooked or disregarded. Many times the skein of association is so tangled that "the accidental is mistaken for the essential, the responsive for the initiatory, coexistence for causation, the sign for the thing signified."

Skillern (Accessory Sinuses of the Nose, p. 332) says that "If no signs of purulent secretion or crusts be present, yet polypoid degeneration of the ethmoid mucosa apparent, we can safely make a diagnosis of chronic hyperplastic ethmoiditis" and "no conservative treatment will suffice after the development of this disease." Previously, in discussing the etiology (p. 326), he has described the causative factor as rather depending upon a protracted and more or less continual disturbance in the nutrition of the ethmoid capsule, than inflammatory changes with bacterial invasion.

The profession looks to the specialist for a proper classification and definition of the ills that fall within his realm. It will scoff at ultra-refinement of classification, but failure to identify the early stages of a chronic condition cannot but be a reproach to diagnostic skill. As H. C. Wells aptly says, "There is a natural tendency in

the human mind to exaggerate the differences and resemblances upon which classification are based, to suppose that things called by different names are altogether different and that things called by the same names are practically identical."

Changes in the mucosa lining, the ethmoid cells may be arrested at any stage between congestion and polypoid degeneration. The mucosa never becomes absolutely normal and the potentiality of development to maturity ever remains present. It is impossible to predict the course these cases will take without prolonged observation. Hence the term *larval ethmoiditis* is suggested to include all the cases in which changes is suspected but cannot be clinically demonstrated. By such a diagnosis recognition is given the fact that, either under conditions existent, whose influence cannot be instantly determined, or conditions unforeseen that may later supervene, frank hyperplastic ethmoiditis with polypoid change may develop.

To await the development of polypi before making a diagnosis of this condition is to err on the side of ultra-conservatism. To diagnose the condition in every case where changes in the ethmoid-mucosa are suspected might prove confusing for clinical purposes, though E. R. Faulkner (private communication) says that at least 75 per cent of the cadavers examined by him show recognizable gross pathologic changes.

Until very recently ethmoiditis has been regarded as a disease almost exclusively confined to adult life. A casual examination of the most recent works on pediatrics convince that the conception is still prevalent. The careful and painstaking work of Dean (Nasal Sinus Diseases in Infants and Young Children, Tr. A. L. R. O., 1919) has been most convincing in the correction of this error. While his investigations have dealt mainly with the suppurative type of the disease, the field opened up for speculation is very broad.

In one series of 234 children with adenoids, 13 years of age or younger, he proved microbic infection in 15 per cent. In a second series of 145 cases, 65, almost 45 per cent, were infected. It is fair to assume that practically every child in both these series would have shown inflammatory changes in the ethmoid mucosa. Of the sinuses, he finds the ethmoids most frequently involved. He also states (Paranasal Sinus Diseases in Children, U. of Iowa Studies in Medicine) that "when sinus diseases have been apparently cured, the cure may be more apparent than real."

The ethmoid cells, according to Schaeffer (The Nose and Olfactory Tract), "develop by the evagination of pits in the nasal mucous membrane of the fetus with consequent pneumatization of the prim-

itively solid structures of the lateral masses." Subject as the nasal mucosa is to the insults of various irritants, microbic, chemical and mechanical,—it must be that in many infants that portion lining these primitive parts is diseased before pneumatization has much more than started and as a consequence the lining of these cells—the evaginating membrane—has always been diseased.

The mechanical difficulties inherent in the examination of the ethmoid region of an infant or young child will always force dependence upon the history in making a diagnosis. The X-ray cannot be relied upon implicitly and its value is largely of a confirmatory nature.

The frequency of larval types of ethmoiditis will be better appreciated with this revised conception of the age at which this disease may commence. Dean states that the cures of the suppurative type are in some cases more apparent than real, which warning is echoed by Coffin (Discussion Tr. A. L. R. & O., 1921, p. 22), who says: "There is no security against recurrence in the ethmoid. You don't know when these cases are well." The fact that a diseased membrane is less resistant to infection than a healthy one causes the transfer of many of these cases at some stage of their development from the hyperplastic to the suppurative type. That the full florescence of the disease may be rapid is established by the fact that two children, age 5 and 6 years, respectively, came under observation during the past winter with nasal polypi, and radical operation was necessary upon two boys, aged 14 and 15, for complete bilateral occlusion due to polypi.

For clinical purposes the etiological factors of hyperplastic ethmoiditis might be roughly divided into intra- and extra-nasal, though at times, both factors may be active. In both types the original cause may have disappeared or become so ameliorated as to be unrecognizable. Yet profound changes may remain in the ethmoids.

The intra-nasal causes, such as anatomical irregularities, repeated local infections, etc., are so well recognized as etiological factors as to demand but passing mention. The tendency to disregard the ultimate possibility of the long-continued action of a mild irritant, mechanical or chemical, must be combatted and close watch kept to prevent the development of a condition in which "no conservative treatment will suffice."

The exact etiological value to give to certain extra-nasal factors is problematical. The realm of speculation is entered, but the challenging of theories, later, perhaps, to be proven false, focuses attention and often leads to the closer observation that reveals the truth or prevents causation being mistaken for coexistence.

That disturbances of the gastro-intestinal tract and the endocrine glands, as well as protein sensitization, to mention a few of the important groups, are reflected in the nasal passages, has long been recognized, but the surface of the subject has but been scratched.

The suggestive work of L. A. Coffin has been generally disregarded and he has not pushed his studies in the field. There are three conditions of etiological significance in this tract—putrefactive toxemia, metabolic toxemia and protein sensitization. In the more advanced cases of hyperplastic ethmoiditis, with this underlying or accompanying condition, local treatments and surgical measures will never afford proper relief until the gut receives proper attention. A. Eustis (quoted by E. Zueblin, N. Y. M. J., 1918, vol. 10, p. 51), in a series of 158 asthma patients, found indicanuria in 98.3 per cent. J. C. Beck (Laryn., 1917, p. 425) claims that hyperplastic ethmoiditis is due to hyposecretion or disharmony of one or more of the ductless glands, and that the underlying cause is a focal infection and that the source thereof is most frequently in the intestinal tract.

The vast amount of clinical interest and laboratory research now going on in the field of endocrinology is bound to eventuate in a crystallization at least of the basic truths regarding these important glands and a better knowledge of their inter-relationship.

The association of endocrine dysfunction and hyperplastic ethmoiditis is fairly common. Whether the solution propounded by Beck is the true one, time and a more careful and extended observation will prove. There are probably other factors concerned also. Cases have been observed where such as ciation was not demonstrable. In some of those suffering from hyperthyroidism, it may have been that an acute or sub-acute sinus infection may have been the cause of the derangement of the normal thyroid function. Though the microbic element had disappeared, enough irritation remained to continue the condition. These cases of low-grade hyperthyroidism are easy to overlook, as the symptoms are vague, yet localized enough to direct the patient to seek relief from the rhinologist.

J. C. Beck (Trans. A. L. R. & O., 1913, p. 71) says that "the pathologic changes found in the middle turbinates and curetted portions of the ethmoid in asthma cases and in the suppurative sinusitis are very striking in that the bone shows rarefaction somewhat resembling that found in early bony changes of osteomalacia, acromegalia, and otosclerosis. This pathologic finding is suggestive of a possible etiologic factor in some disturbances of the polyglandular system or the glands of internal secretion."

Selfridge (Cal. State J. of M., Apr., May, 1919) claims that the endocrine glands are the probable fundamental source of vaso-motor instability and cites cases due to hyperthyroidism and dysfunction of other glands.

The more violent types of protein sensitization with nasal response are not in as much danger of being undiagnosed as the very mild cases where the persistent action of slight irritation leads to chronic changes before the source is discovered.

Of the complications of this disease, eye affections and asthma are pre-eminent. Neither the rhinologist nor the opthalmologist has yet realized the full extent of the role of non-suppurative ethmoid disease in the former class. For example, an hypothesis to explain the sequence of events in certain cases of retro-bulbar neuritis is very difficult to formulate. The history, the examination, the X-ray, the operative and pathological findings may all be practically negative in cases with sudden loss of vision and yet the post-operative result may be brilliant. Though operative measures of such severity, based upon a diagnosis by exclusion, are not relished by a conscientious surgeon, the gravity of the condition demands such procedure until more accurate diagnostic measures have been attained.

The assumption seems justified that if such a severe and inexplicable complication may ensue, other conditions of less gravity must be influenced by the apparently slight changes in the ethmoid cells, which may retard or prevent proper response to therapeutic measures. The adoption of the attitude, "Guilty until proved innocent," rather than its converse, might prove of inestimable value.

The treatment of the early stages of hyperplastic ethmoiditis calls for no extensive comment. Once the liability of the development of this condition is fully appreciated the prophylactic treatment becomes self-evident. Brilliant or striking results are not to be anticipated and the attempt to restore cells to normalcy will often appear as difficult as the restoration of the world to the same much to be desired condition. Persistence and the ability to shift the point of attack as conditions change promise most.

For direct local action the apparatus devised by Coffin for alternate suction and compression supplemented by the nasal syphon, sold under the name of Nichols, or the so-called Brawley suction apparatus for home use, has yielded fair results. Though complete cure will not result in all cases, careful prophylaxis will greatly diminish the number that develop to maturity or become suppurative and force the condition to remain in the larval state.

17 East 38th St.

ASPERGILLOS OF THE MAXILLARY SINUS.*

DR. ROSS HALL SKILLERN, Philadelphia.

Curious cases, even though rarely met with, present a certain amount of interest, as one is always in the position of unexpectedly encountering a similarity which. for the moment, remains unrecognized. Such is the history of the following, which I have the honor of presenting to you this morning:

James B., a large man about fifty years, presented himself with vague symptoms referred to the left maxillary sinus. Some unilateral apparently non-fetid nasal discharge, a feeling of fullness over the left antrum, vague head pains, entirely a-typical of sinusitis. No periods of congestion or depression and no post-nasal discharge. Some casosmia at times, but never marked.

Examination revealed a slightly congested, lateral nasal wall, otherwise normal. A needle puncture of the maxillary sinus was made and it was found considerable resistance was offered to the ingress of the normal saline solution. Being mindful of the fatalities reported by Gording[1] following needle puncture in which there almost invariably was difficulty in forcing the irrigating solution into the sinus, I proceeded with the utmost caution, watching the patient closely for the appearance of any untoward symptom. Despite the continuation of gradual pressure, nothing developed, nor did any liquid escape from the nose either anteriorly or through the choanae into the pharynx. As the resistance seemed to be lessening, another syringe-full was tried and almost immediately some fluid returned from the nostril on that side. It appeared slightly turbid, but no free pus was observed. After the injection of, at least, sixteen ounces there appeared in the washings, small white inspissated masses which resembled cottage cheese. It immediately occurred to us that we were dealing with a case of cheesy metamorphosis of a sinus empyema or a so-called verkäsung which, of course, is a condition where the purulent secretion has become sterile and begins to organize into a semi-solid mass. Continued lavage, which now was returning quite freely, brought fourth a considerable quantity of this cheesy material, some of which was set aside for pathologic investigation. Lavage was continued until the antrum was free, the in-

*Read before the Annual Meeting of the American Laryngological Association in Atlantic City, May 31, 1921.

jected fluid returning clear. The patient expressed himself as greatly relieved, saying his head felt lighter than it had for a long time.

He did not return for nearly a week, when further needle puncture and lavage were negative, the patient feeling quite well. He was to report should any of his old symptoms reappear, but as several months have now elapsed, we can consider the case as cured.

The pathologic examination by Dr. Case gave the following findings:

"The specimen was small, soft and possessed no characteristic appearance that might have suggested the diagnosis. It had been placed in formaldehyde solution so that a cultural study was, unfortunately, not possible. Following the usual routine, it was imbedded in paraffin, stained with hematoxlyn and eosin and examined histologically..

As may be seen in the preparation under the microscope, it consists of a close mycelial network with an occasional conidiaphore surmounted by a fan-like arrangement of conidiaphores. The hyphae take a faint pink stain, but the fructifying bodies are yellowish in color, apparently resisting the penetration of the dye." Diagnosis, aspergillus probably of the species fumigatus."

"The conidiaphores are rounded rods with a bulbous extremity, from which the conidiaphores grow like numerous minute fingers. The germ aspergillus possesses a number of species, a few of which are pathogenic for warm, blooded animals. Among the non-pathogenic forms is the aspergillus oryzeae which furnishes the widely known takadiastase.

The nomenclature of the genus aspergillus is evidently not definitely fixed, as one soon discovers when examining the literature."

McFarlane[2] gives the following species as pathogenic: Aspergillus malignum, found in the external auditory canal of man. Aspergillus nudulans, occasionally infecting cattle. Aspergillus fumigatus, found in the external auditory canal and in other situations in man, and the cause of a fatal pneumomycosis of pigeons, a disease sometimes transmitted to man, one observer collecting 39 cases. Aspergillus niger. Aspergillus flavus. Aspergillus subfuscus.

While infection of the middle ear by the various forms of the aspergillus is comparatively common, an infection of the accessory sinuses is apparently quite rare, as but four authentic cases have hitherto been recorded. All of these occurred in women and the infection was the aspergillus fumigatus

Dr. C. von Zarnico[3] reported a case in a woman of 50 whose chief complaints were nasal obstruction associated with much discomfort,

an abundant secretion of a sickening odor and frontal headache with, at times, a feeling of obstruction in the left ear. Lavage of antrum brought forth a profuse fetid muco purulent secretion containing brownish-gray masses about the size of a pea which, together, formed a mass as large as a hazel nut. The infecting organism was the aspergillus fumigatus. Great improvement was noted immediately after the first irrigation and ultimate cure after the twenty-first. He was unable to find any report of a similar infection.

The length of time required to bring about a cure in Zarnico's case was probably due to the fact that an antral empyema co-existed with the aspergillus infection, which in my case did not obtain.

Dr. J. H. Mackenzie[4] reports a similar case due to aspergillus fumigatus. This patient, a woman of 35, first noticed a swelling on the right side of the face, which was relieved temporarily by a discharge of pus from the nose. The infection was later located in the antrum of Highmore, which was opened, drained and irrigated at regular intervals. Two months later, portions of a membrane came away, which, when examined by Doctor Flexner, was found to consist of an outer layer of round cell infiltration, a middle one of necrotic material and an inner zone of a dense mycelial network.

In 1913, Douglas Harmer[5] reported a case before the Royal Society of Medicine of London. The patient, a lady, contracted a severe cold while motoring in an open car and developed a persistent discharge of mucous from the right nostril, accompanied, at times, by a thick membranous, non-offensive cast of a brownish color from the back of the throat. He described it as resembling wet blotting paper. She had violent attacks of sneezing and her general condition was bad. Headache and neuralgic pains around the right eye were occasionally complained of and she suffered from insomnia. While her temperature and pulse were normal, she appeared to be toxic. The nasal mucosa was intensely edematous and the secretion very abundant.

The antrum was irrigated, no discharge appeared for a time until about a pint had been injected, when small lumps of brownish membrane began to appear in which a copious growth of the aspergillus fumigatus was found. Various lotions were used, but she received the most relief following the frequent administrations of sodium iodide. In discussing Dr. Tilley's paper eighteen months later, Dr. Harmer said that though relieved, the patient was not cured and he believed the ethmoid sinuses were also involved. He mentions finding but three cases in the literature, but gives no references.

Herbert Tilley[6] also reported a case before the same Society, stating that he had met with five cases in all. The first in 1909 was reported in the *Lancet* of that year as an endothelioma myxomatodes, but which he now believes to be a case of aspergillosis. He gives no reference to any report of the other three cases.

In the last case, the symptoms were a persistent discharge of mucous and muco-pus; fits of violent sneezing with an expulsion of grayish-white viscous masses; headache, with neuralgic pains in and around the cheek and eye, so severe in his first case as to interfere materially with the patient's rest. He speaks of the intense edema of the nasal mucosa, with bulging of the wall of the antrum, suggesting cyst formation. A return of fluid after the needle puncture could not be obtained. His cases were operated upon by Caldwell-Luc method with no recurrence.

From the foregoing, it would appear that in my case, the infection was a recent one uncomplicated by any form of purulent process which would account for the rapid disappearance of the infection.

BIBLIOGRAPHY.

1. GORDING: Serious Complications in the Puncture of the Maxillary Antrum. Investigations, etc. Annals of Otology, Rhinology and Laryngology. June, 1920.

2. MCFARLAND, JOSEPH: A Text Book on the Pathogenic Bacteria and Protozoa.

3. ZARNICO, *C.*: Aspergillusmykose der Kieferhöhle. *Woch.*, S. 1222, No. 44, 1891.

4. MACKENZIE, J. H.: Preliminary Report on Aspergillus Mycosis of the Antrum Maxillare. *Johns Hopkins Hosp. Bul.*, p. 9, Jan.-Feb., 1893.

5. HARMER, DOUGLAS: Exhibition of Specimens from a Case of Suppuration of the Antrum Due to Aspergillus Fumigatus, etc. Proceedings of Royal Society of Medicine, Laryngological Section, p. 91, 1912-13.

6. TILLEY, HERBERT: Aspergillosis of the Maxillary Antrum. Proceedings of Royal Society of Medicine, Laryngological Section, p. 14, 1914-15.

1928 Chestnut St.

A NEW REMEDY FOR VINCENT'S ANGINA.

DR. CHARLES R. KING, Toledo, Ohio.

Vincent's Angina plays a minor role in the practice of oto-laryngology, but it is none the less important for that, since we know how effectively it hides its identity to anything short of the closest scrutiny, and how stubbornly it yields to treatment in many cases after the correct diagnosis is made.

While it is possible that it may occasionally be mistaken for diphtheria, I believe it is most often confused with the throat lesions of secondary or tertiary syphilis. The appearance of these anginal ulcers certainly bears a very close resemblance to luetic ulcers in many cases. Hence, the difficulty, and I will say the futility, of attempting to make a diagnosis without the aid of a competent bacteriologist. The result of a Wassermann reaction means absolutely nothing, if we go no further in our investigation, for two very good reasons. Firstly, a luetic person might also have an attack of Vincent's Angina, and secondly, competent observers claim that it is possible to obtain a positive reaction in Vincent's Angina without syphillis being present.

A thing that is done much too frequently, and inexcusably, by that type of practitioner prone to make "snap-shot" diagnoses, is to look into a mouth or throat and call every suspicious ulcer a manifestation of syphilis. The poor patient, without much further ado, is placed on some form of anti-luetic treatment, and since the iodids, and salvarsan, have a favorable influence upon the course of Vincent's Angina, the ulcers heal in time, and both physician and patient feel that the good results of this treatment verify the diagnosis of syphilis. Nevertheless, in such a case, the patient passes the rest of his days on earth believing he has had syphilis, has been cured but that it may return to torment him again, and in this manner another victim is added to that vast horde of mental sufferers.

In Vincent's Angina, the laboratory furnishes us with information unobtainable in no other way, and this information is of the most positive kind, since by demonstrating the presence of fusiform bacilli in a mesh-work of spirilla, our diagnosis is clear.

Having made the diagnosis of Vincent's Angina, our real difficulty commences as we cast about for a remedy to combat the infection effectively.

Silver nitrate solutions, and tincture of iodin, have their uses in certain cases, no doubt, but in most of my cases their use has been slow and disappointing in action. It seems to me that the silver solutions in particular have been a failure, and this is due, probably, to the action of the silver in coagulating the albumin of the tissues, the breaking down of local tissue resistance, with a bacterial invasion of greater extent as a result.

In view of the fact that these old time-honored remedies have been of rather unreliable action, I feel no hesitancy in bringing forward an agent which, though used for various purposes in the practice of medicine for ages, has never before, so far as I am able to determine, appeared as a specific remedy in the treatment of Vincent's Angina.

I refer to the sulphate of copper in 10 per solution.

During the late war, Vincent's Angina presented itself very freely in different cantonments, and in these places the otolaryngologist was afforded an opportunity to study its clinical manifestations and treatment rarely equalled in civil practice.

At the head-house of the Camp Sherman Base Hospital, we had a number of these cases for treatment at all times. These cases were usually of varying degrees of severity, and they were treated by the orthodox remedies with the usual slow response. One day, when we had a big influx of patients in the clinic, among them being a number of cases of Vincent's Angina, I found my little bottles of silver nitrate and iodin empty. To refill them would require sending them to the dispensary, and rather than lose this valuable time I cast my eyes over my table for a substitute. We always had a supply of copper sulphate 10 per cent solution on the stand for use in certain ear cases, and this suggested itself as a harmless substitute, at least. Saturating cotton on an applicator with it, I rubbed off the spuerficial sloughs left on the ulcers by the silver nitrate, then, with a clean applicator, applied the copper directly to the denuded ulcer in all of these patients.

The next day, when these same cases again presented themselves for treatment, my surprise and joy were unbounded when I found that every one of them showed marked improvement. This improvement continued in all of them, and within the next four or five days, the lesions had all cleared up.

After this favorable experience I used nothing else in the treatment of this disease at the Base Hospital, and in my private and hospital practice at home.

I have found that an occasional case will resist even this remedy, although in this way, the copper solution will readily heal the ulcers, but the infection will break out anew in some other location, showing that the focus of infection has not been eliminated. These cases I send to the dentist, with a note apprising him of the nature of the infection, and request that the teeth be thoroughly scaled and cleaned. After this dental hygienic work has been done, it is exceedingly rare to see a relapse.

I am aware that the tonsil may prove to be a focus of infection, the micro-organisms being hidden away in some of the crypts. In such a case the proper procedure is to clean up the ulcers with the copper solution and immediately thereafter to enucleate the tonsils. I have seen tonsils enucleated while in the process of ulceration, and the patient make a prompt and uneventful recovery, but I am not convinced that this is a method of treatment entirely devoid of danger.

In conclusion, I wish to say that in my hands, copper sulphate in 10 per cent solution has been a specific in the treatment of Vincent's Angina. While in general its action and uses are said to resemble those of zinc sulphate, and to a less extent, silver nitrate, in the treatment of this disease its action as a remedy is not imitated by any other agent. Furthermore, the use of this solution is not at all disagreeable or distasteful to the patient, nor has it the deleterious effect upon the teeth that is exhibited by some of the other remedies.

We know that copper sulphate has long been recognized as a drug of use in the treatment of ulcers of various kinds, and certain skin diseases, such as tinea sycosis, psoriasis, acne, etc., but until trying out its use as related, during the past three years, I did not know that it is a real specific in Vincent's Angina.

467 Spitzer Bldg.

"ARRESTED LARYNGEAL TUBERCULOSIS" — ABSCESS OF ZYGOMATIC FOSSA FOLLOWING PNEUMONIA"—"EXOSTOSIS OF EXTERNAL AUDITORY CANAL."*

DR. HENRY S. WIEDER, Philadelphia.

The first case which I desire to present this evening is one of a remarkable arrest of tuberculous laryngitis. The patient, M. E., age 33, Russian birth, first presented herself for examination April 2, 1918, with a history of four months' pregnancy, at the beginning of which she became hoarse and had remained so until the time of the examination, with continually progressing intensity. She had no cough, pain, chill or sweats. On examination, the nose showed hypertrophied turbinates. The pharnyx was pale, with some dilated venules. The larynx showed distinct infiltration of the right vocal cord anteriorly and in the subglottic region, rendering the cord more or less rigid and interfering with approximation in the midline. A definite diagnosis could not be made at the time, but a report was made to her physician, Dr. Averett, that there was a marked suspicion of tuberculosis which would bear careful watching and a careful general examination was advised.

After a few local treatments the patient was lost sight of until July 27, 1918, when she again reported, being at that time seven and a half months pregnant. She then had decided dysphagia and absolute aphonia. Examination showed dense infiltration of both arytenoids and ventricular bands with probable ulceration of the posterior ends of the vocal cords. At that time a report of advanced tuberculous laryngitis was made, the immediate termination of pregnancy advised and a guarded prognosis given.

Again my advice was not taken by the family and pregnancy was not terminated, the patient being delivered at full term, the infant dying of marasmus when only a few months old. Following delivery, the patient was admitted to the Lucien Moss Home of the Jewish Hospital, where an unfavorable prognosis as to life was given. However, she gained in weight and after considerable improvement in her general health she left the hospital and on December 3, 1918, again reported to me. Her color was good and she was considerably stouter than she had been, but she was almost aphonic.

*Read before The Philadelphia Laryngological Association, Jan. 4, 1921.

Examination still showed marked infiltration of the arytenoids and ventricular bands. Under continued applications of lactic acid 25 per cent, formalin 2 per cent, glycerite of tannic acid and argyrol, with forced feeding, open air regime and vocal rest, the patient improved, her weight increasing from 95 at her lowest to 148 at the highest, the vocal lesions gradually disappearing until, at the present time, there is an absolute absence of infiltration of the arytenoids or ventricular bands. The vocal cords are smooth and pale, but slightly thicker than normal, so that the voice, while present, is still coarse in nature. With the history unknown, I doubt the ability of anyone to make the diagnosis at present.

The patient has at no time had sputum so that the examinations that have been made have been mostly from the mouth and have been negative. Two Wassermann tests have been negative. The following report of her physical condition was made by Dr. Elmer Funk:

"As far as I can determine from a consideration of her history, the symptoms and signs, I believe she has a chronic fibroid tuberculosis involving the tops of both lungs. The lesion is in all likelihood well healed in at the present time. In order to check up my physical findings I had an X-ray examination made by Dr. Manges, who reports as follows:

" 'Tuberculous infiltration both apices down to and including the second interspace on the left side, and the first interspace on the right. Numerous calcareous nodules at the roots, especially on the right side. The apical lesions appear to be pretty well organized'."

The second case to be presented is that of a small osteoma of the external auditory canal. The patient, C. McB., age 28, referred by Dr. S. J. Deehan, had a small piece of hardened cerumen removed from his ear six weeks previous to his visit to me on July 27, 1920. Dr. Deehan informed him that he had a small growth obstructing the canal. On July 23, 1920, the patient himself tried to remove some cerumen with a hairpin. Following his manipulations he began to have some pain and went to one of the large hospitals in the city, where the resident physician made strenuous efforts to remove the mass without success.

The pain following these added manipulations was so intense that he was sent to me for immediate relief. Examination showed a smooth mass about ⅜-inch in diameter covered with skin and exquisitely tender, occupying practically the entire lumen of the left auditory canal about ⅜ to ½ inch from the external auditory meatus.

The growth was firm and appeared to spring from the posterior wall of the canal. As the mass was too tender for proper examination and manipulation, the patient was sent to the Northwestern General Hospital and the same afternoon was operated upon under ether. The mass was found to be very dense and hard. A probe could pass it in only the upper anterior quadrant of the canal. A saw was introduced in this space and the growth sawed loose from the canal throughout the entire circumference of the canal. Behind it, a large amount of debris, either bloodclot or inspissated cerumen, was found. This was washed out and a strip of bichloride gauze introduced.

The patient made an uneventful recovery with considerable increase in his hearing. Microscopic examination of the tumor showed it to be comprised of cancellous bone.

The third case is one of post pneumonic abscess of the zygomatic fossa. M. S., age 27 years, motorman, referred by Dr. J. S. Deehan, with a history of having recovered about four weeks previously from a lobar pneumonia of the left lower lung. During resolution, there developed a swelling over the left temporal region, unaccompanied by headache, earache or pain in the parotid region. While it did not trouble him greatly for three weeks, it gradually increased in size and became slightly tender. On July 18, 1920, he developed severe stabbing pain, at first in the ear and later over the entire left half of the head. He claims, that on July 23, when the temporal mass was pressed upon, there was a discharge of three distinct masses of stringy pus, post nasally. There had been no discharge from the ear and no dizziness. X-ray made by Dr. Albert Miller was negative as to sinuses and mastoid regions.

Examination showed a slightly fluctuating swelling extending from the anterior temporal region above the ear to about ½ inch posterior to the external auditory canal. There was marked induration and edema over this area. There was tenderness over the mastoid antrum continuous with the mass in general, but none at the tip of the mastoid. The ear was normal in appearance with the exception of slight congestion of the long handle of the malleus. There was no evidence of a middle or external ear condition as having been the original cause of the infection.

Examination of the nose showed the septum fairly straight with vomer ridges to each side, more marked posteriorly on the right where it constituted an obstruction. The left inferior turbinate was turgescent. Pus and crusts were absent. Washings from the nose were negative. Post rhinoscopic and naso-pharyngoscopic examina-

tions failed to show any place where pus could have escaped. Translumination was negative. The uvula was somewhat elongated. The tonsils were slightly enlarged. A report was rendered that the condition was evidently a post pneumonic abscess of unknown origin and, as far as could be determined, not due to the nose, throat or ear.

At the request of Dr. Deehan, I consented to operate to investigate further and endeavor to give the patient some relief. Accordingly the patient was removed to the Northwestern General Hospital and operated upon under ether anesthesia on July 23, 1920. An incision about one inch long was made in front of the ear in the hair line. At a depth of about ¾ inch below the fascia approximately one and a half ounces of a dark grumous pus was found, with a large cavity pointing down into the zygomatic fossa and beneath the floor of the middle fossa of the skull, the bone being bare in this situation. No dead bone was discovered, but considerable amount of thickened masses were extruded from the wound and washed out with 1/2000 bichloride of mercury solution. Another incision an inch long was made behind the ear and washed through to the other wound. The abscess cavity was curetted and tube drainage was placed in the zygomatic fossa pointing upward. The patient made an uneventful recovery.

Examination of pus showed a laceolate encapsulated diplococcus on smear, but no cultures were made. Wassermann was negative.

As to the mode of entry into the zygomatic fossa I am in doubt. It has been suggested that it may have begun as an envolvement of the upper pole of the parotid gland, but the history does not bear this out. Were it the case it may possibly explain the expression of pus into the mouth, through Stenson's Duct, but not post nasally.

2035 Chestnut Street.

SOME FACTS CONCERNING HAY FEVER AND ASTHMA.*

Dr. Mark J. Gottlieb, New York City.

Hay fever is an incurable disease due to pollen allergy. In this climate it occurs in the spring in some patients and in the summer and fall with other patients. Some individuals suffer with both varieties. The spring variety is due, in the main, to the pollen of grasses. The fall variety is due mainly to the pollen of ragweed.

I have observed a few cases in which the disease did not recur after the patient had suffered several years from it. The most that can be hoped from treatment, which consists of desensitizing with the causative pollen, or pollens, is seasonal relief. The treatment of the spring variety is by far much more satisfactory than the fall variety. As a matter of fact, about ninety per cent of patients suffering with spring hay fever can be given complete seasonal relief with prophylactic desensitizing doses of the pollens to which the individual is sensitive.

This encouraging statement, however, cannot be said of the fall variety. From my experience the results in the treatment of hay fever due to ragweed, I have come to the conclusion, after trying all methods and extracts produced in different ways, that it has been a dismal failure. Of course, one does get a few cases in a large series who are free from symptoms but they are so much in the minority as to be considered negligible. It has always been a question in my mind whether these patients were hypnotized either by the convincing talk of the physician, the environment or the fact that the patient received hypodermic injections which had a definite psychological effect upon him.

Hay fever statistics relative to the results of treatment are to my mind, a hoax and a snare because they are dependent upon so many varying factors. Adding the spring cases to the fall cases raises the average of the fall cases and thus makes the results in the fall cases better than they actually are.

(1) The enthusiasm of the physician; (2) The mental attitude of the patient; (3) Climatic factors, such as abundant rain, severity of heat, the amount of sunshine as compared with the same season of

*Read at the Laryngological Section, New York Academy of Medicine, March 23, 1921.

other years; (4) The patient might not have had hay fever that season even if he received no treatment.

There are a great many other conditions which simulate hay fever and are occasionally placed in that category. These are sneezing due to allergy from substances other than pollens, such as, horse dandruff, tobacco, face powder and absorption of materials from the intestines.

Uncomplicated bronchial asthma is a symptom complex which manifests itself by swelling of the mucous membrane of the bronchial tubes. This is either a turgesence of the small blood vessels or an exudation into the perivascular spaces. It is comparable to urticaria, or the swelling in the nose which occurs in hay fever It is due to an allergy. Uncomplicated bronchial asthma is rare. It is usually associated with a super-added infection of the bronchial mucous membranes which disturbs the patient between the allergic attacks. Other factors to be considered in the etiology of bronchial asthma are: bronchial spasm due to reflex irritation, particularly in sinus disease in the nose where the discharges are profuse and nasal respiration imperfect by virtue of partial or complete obstruction. Two additional factors which play an important role are the psychological make-up of the patient and habit, for it has been definitely demonstrated that simple bronchoscopy will rid the patient of symptoms for a longer period than the patient usually goes without symptoms.

The substances, to which patients suffering with bronchial asthma have been found to be allergic, may be considered in groups: (1) The epidermal group, characteristic of which, and most common, are horse dandruff, cat hair and goose feathers; (2) The food group; (3) The pollen group; (4) The bacterial group.

The first three groups are generally known and need no further elaboration. The bacterial group is still in its experimental stage, but, to my mind, the evidence of its authenticity is gradualy accumulating.

Of one hundred and three cases which were tested with both stock and autogenous organisms, I find that there were eight hundred and seven tests made with stock bacterial proteins, seven hundred and ninety-nine of which were negative and eight positive. B. coli, B. diptheroideus, staphylococcus albus and pneumococcus were positive once each; streptococcus hemolyticus and streptococcus non-hemolyticus twice each. One hundred and ninety-five tests were made with autogenous bacterial suspensions, one hundred and fifty-

seven of which were negative and thirty-eight positive. Among the positive I find that B. coli was positive eighteen times; B. mucosus capsulatus, B. influenza, pneumococcus, M. catarrhalis and streptococcus viridans were positive once each; streptococcus non-hemolyticus four times, streptococcus hemolyticus and staphylococcus aureus twice, and staphylococcus albus six times. Doubtful reactions were considered negative. It will readily be seen that the proportion of positives among the autogenous tests was far greater than that which occured among the stock bacterial proteins. What the significance of comparatively large number of positive reactions with B. coli has cannot be definitely stated at this time. Suffice it to say that I have one case of bronchial asthma and three cases of vasomotor rhinitis who were very sensitive to their own colon bacillus and recovered following injections of an autogenous vaccine of this orgnism. However, I have seen other patients who were also sensitive to the colon bacillus who did not recover after receiving the vaccine.

The treatment of bronchial asthma may be stated in a few words as follows: (1) Abstaining from all foods to which the patient is allergic; (2) In the case of horse dander sensitiveness, desensitization with horse dandruff extract. If the patient is sensitive to any of the other epidermal proteins, the source of them should be removed; (3) When bronchitis exists in addition to the allergic condition bacterial vaccines should be used. Most patients do very well with vaccine, except those who have definite changes in the bronchial mucous membrane and peri-bronchial tissue, and, in this case, topical applications directly to the bronchi may be of service; (4) All sources of re-infection, especially from the nasal chambers, pharynx and throat should be eradicated.

43 W. 69th St.

A NEW METHOD OF MEASURING HEARING POWER BY MEANS OF AN ELECTRIC ACUMETER.*

DR. JOHN GUTTMAN, New York.

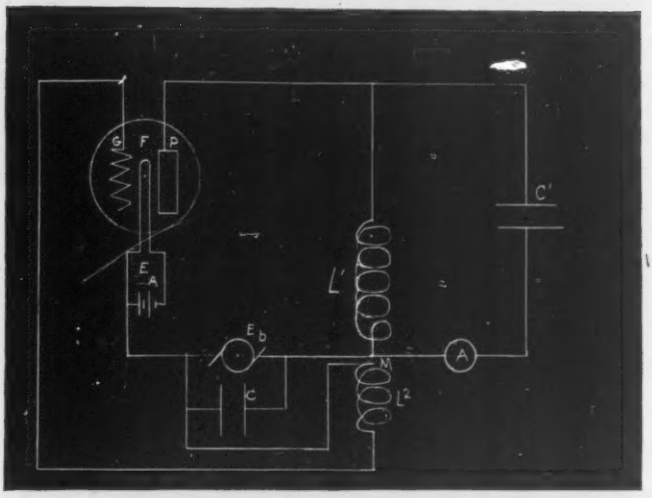
We are all familiar with the present inexact methods of examining the hearing power. These methods can be divided according to the source of the emanating sound into two classes: (1) examination with the voice, which may be either a whispered or a loud voice, and (2) examination with mechanical instruments, such as the watch, acumeter, tuning forks, Galton whistle, monochord, etc.

In most of these methods we do not measure directly the amount of intensity necessary to arouse the sensation of hearing; we measure the intensity only indirectly, by increasing or decreasing the distance between the source of the sound and the ear of the patient. According to the well-known physical law, intensity of sound varies inversely as the square of the distance from its source. If, for instance, a watch can be heard by a normal ear in 20 inches, and the affected ear hears it only in 10 inches, the hearing power of the affected ear is not one-half, but only one-fourth of the normal hearing power. Or if a watch can be heard by a normal ear in 30 inches, and the patient hears it only in 10 inch distance, his hearing power is not one-third, but only one-ninth, of the normal hearing power.

The instrument which I intend to demonstrate to you was conconstructed for me by J. H. Morecroft, consulting engineer. It consists of two vacuum tubes, equipped with three electrodes. These will generate an alternating current, when supplied with continuous current power, providing that certain necessary conditions are satisfied. The frequency of the alternating current generated will be determined by the electrical constants of the circuit, which is connected to the tube. This frequency depends to a very slight degree upon the resistance of the oscillating circuit, being fixed within less than one per cent generally, by the value of the co-efficient of self-induction and capacity of the circuit.

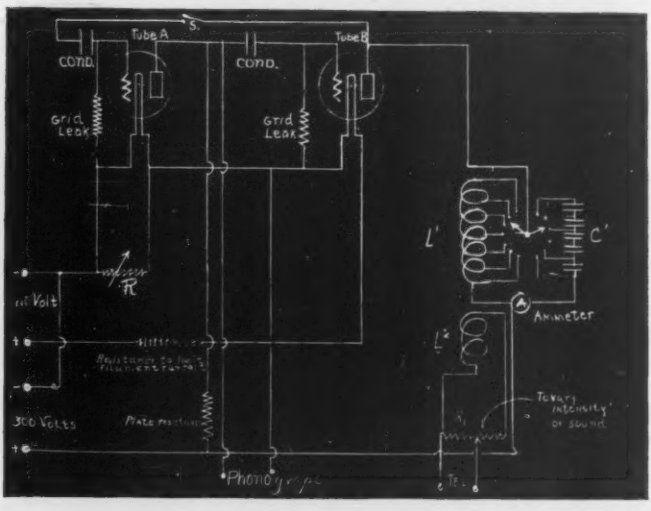
Provided that certain conditions are fulfilled, the form of the alternating current generated by the tube will be more nearly of true sine form than that obtainable from any other source of alternating current power. This sine wave of current, sent through a

*Read at the Section of Otology, New York Academy of Medicine, May 13, 1921.



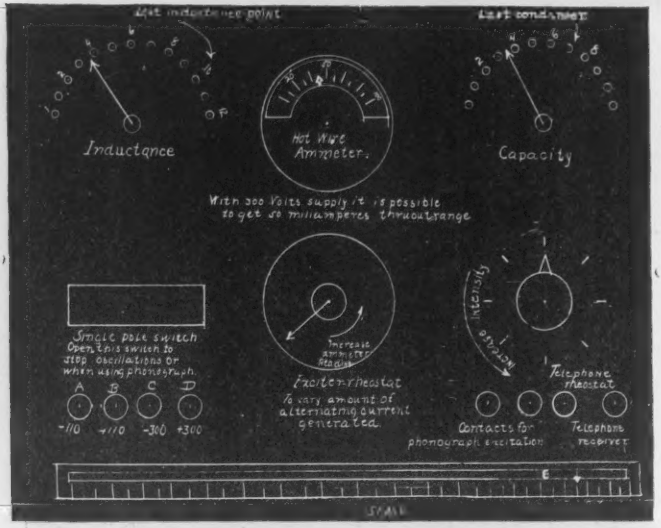
proper telephone receiver, will give a musical note, the quality of which is probably more nearly a simple harmonic vibration than obtainable from any other source.

As a source of sound for testing purposes, this device is immeasurably better than any means at present employed. The



superiority of the oscillating tube is due to two factors: the note is perfectly uniform in intensity as contrasted to a series of "damped harmonic waves," which term describes the sound given off by a tuning fork repeatedly struck; the intensity of the sound is exactly reproducible, by means of suitable adjustments and meters available in the set.

The value of the alternating current generated by the set is read on a hot wire ammeter. All, or a part, of this current passes through the telephone receiver. The fractional part of the current which the


Inductance
Hot Wire Ammeter.
Capacity
With 300 Volts supply it is possible to get 50 milliamperes throughout range
Single pole switch Open this switch to stop oscillations or when using phonograph.
A B C D
-110 +110 -300 +300
Exciter rheostat
To vary amount of alternating current generated.
Increase ammeter reading
Intensity
Telephone rheostat
Contacts for phonograph excitation
Telephone receiver
SMALL

telephone carries is governed by the setting of a rheostat, which is ordinarily connected in parallel with it. If desired the combination of rheostat and telephone can be calibrated so that for any setting of the apparatus, the exact amount of current passing through the telephone may be known. This known current can be used to get the actual amplitude of the telephone diafram, if desired.

For the examination with the voice, a phonograph in combination with a microphone is connected with the same circuit. In the application of the phonograph I received valuable assistance from Mr. C. M. Goldstein, consulting engineer, and from Messrs. Emerson and Bergh of the Emerson Phonograph Co., who kindly made for me a special record of words, vowels and notes, particularly adapted for this purpose.

The following is a technical and detailed description of the apparatus:

Fig. 1 illustrates the circuit quite generally used. The filament of the tube F is heated by battery EA. The plate P is held about 300 volts positive with respect to the filament (for the type of tube used in this set) by the generator E^a. As a protective measure this machine is shunted by a by-pass condenser C.

In the plate circuit is the connected oscillating circuit, consisting of L^1 and C^1, one or both of which is variable. To measure the alternating current flowing in this circuit there is used a hot wire ammeter A.

The coil L^2 connected between the filament and grid is coupled magnetically (M) to L^1.

Such an arrangement, if the polarity of L^2 is correct, and if the mutual induction M is sufficient, and if the resistance of the oscillating circuit is sufficiently low, and if the ratio of L^1/C^1 is not too small, will oscillate, generating in the circuit L^1-C^1 an alternating current of frequency fixed approximately by the formula

Such a circuit works very well over a limited range of frequency. To cover a wide range of frequency, however, it is necessary to have different values for L^2, and use somewhat different schemes for coupling L^2 to L^1. Generally different sets of coils must be used to cover a frequency range from say 40 to 20,000.

The scheme used in this oscillator, Fig. 2, employs two tubes in a special circuit which seems more suitable where a wide frequency range is desired. One of the tubes, B, is attached to the oscillating circuit, but this tube is not self-exciting, as in the Fig. 1. The other tube, A, is so interconnected to tube B that A furnishes the necessary voltage for exciting the grid of tube B. The frequency of this exciting voltage from tube A is, however, fixed by the oscillating circuit (L^1-C^1) of tube B. By opening a switch, S, connecting the plate circuit of tube B to the grid circuit of tube A, oscillations may be stopped.

The two filaments are connected in series with a suitable resistance for operating from a 110-volt direct current line.

The filament of the exciter tube A is shunted by a variable resistance R, by means of which the strength of oscillations in the L^1-C^1 circuit may be maintained of constant amplitude. L^1 and C^1 are divided into suitable steps so that the note may be varied by octaves throughout the audible range. Whereas on this set two switches are used for varying the frequency, it is quite feasible to construct this as one switch.

The telephone from which the note is obtained is shunted across a resistance, R^1, connected to an auxiliary coil L^2 wound concentrically with L^1. By varying the resistance (which is at all times low) the amplitude of tone (intensity) is variable at will, from zero to a note loud enough to fill a large hall.

By opening switch S and connecting the posts marked "Phono" to a suitably connected microphone and transformer, and adjusting C^1 for zero capacity, the note given off by the telephone will be a reproduction of the phonograph record.

Instead of connecting the telephone receiver to a pair of posts marked "telephone," I prefer to connect a primary coil of a variable ratio transformer, to the secondary of which is connected a telephone receiver. By varying the distance between primary and secondary, any desired intensity of sound can be obtained. A pointer is attached to the secondary coil, which registers on a metric scale the distance of the secondary from the primary coil. When this scheme is used the adjustment of the other resistance is left constant.

Plate III illustrates diagram of front panel of instrument.

The advantages claimed for this apparatus are:

1. That we can produce sounds of various pitch and intensity, which can with exactness be reproduced and repeated at will.

2. The threshold of intensity necessary to arouse the sensation of hearing is measured directly by physical units of measurement, namely by an ammeter and metric scale.

3. The intensity of sound can be variated in each and all pitches separately, and the pitches in turn can be variated in each intensity, ranging from about 8 to 20,000 vibrations per second.

4. The sound can be heard and controlled by several persons using a receiver of the same resistance, and we can thus determine almost

objectively the amount of hearing power. The shortcomings of the apparatus are:

1. The inability to test bone conduction.
2. The sounds obtained are not entirely free from overtones.
3. The sound produced by the phonograph is not sufficiently distinct.
4. The instrument is rather cumbersome and comparatively complicated.

These faults we hope to overcome at least partially by improved mechanical construction in a future model.

W. S. Bryant,[1] as late as 1904, demonstrated a phonographic acumeter which consisted of a phonograph enclosed in a sound-proof box from which a rubber tube led. At the other end of the tube a brass graduating valve was attached, which served to regulate the volume of sound leading to the ear by another rubber tube.

This instrument evidently did not find favor with the profession and was abandoned.

Lately S. W. Dean and C. C. Bunch[2] published a description of an instrument which consists of a receiver magnet mounted in front of a toothed wheel. The pitch of the tone is varied by varying the speed of the wheel. The wheel is driven by a current motor.

Upon the completion of this article I find, in some late European periodicals, which during the war were not accessible, that experiments with electric acumeters were conducted also abroad.

Brunings[3] described an electrical apparatus for measuring hearing power, but he could produce on his instrument a sound of one pitch only.

Griesner and Schaefer[4] demonstrated an instrument constructed in some respects similar to the one described by myself, but according to their description, the instrument of Griesner was not constant in the holding of the pitch, and the instrument of Schaefer could not produce sounds below 500 vibrations per second.

Gildenmeister[5] used a Poulson lamp for the production of undamped electric vibrations, but he does not describe his instrument in detail.

REFERENCE.

1. Arch. of Otology, 1904.
2. Laryngoscope, 1919.
3. Verhandl der Oto Ges., 1913.
4. Beitrage zur Ana; Phys., Path. u. Ther. des Ohres, der Nase u. des Halses, 1921.
5. Berlin Klin. Wochenschr., 1918.

616 Madison Ave.

A NEW METHOD AND A NEW INSTRUMENT FOR ENDOSCOPIC EXAMINATION OF THE MAXILLARY ANTRUM.

DR. HARRY L. BAUM, Denver, Colo.

A review of the literature relating to diagnosis in antrum disease reveals an evident need in this connection in that almost every article refers in some way to the lack of adequate means of examination of the antrum. X-ray, transillumination and antral lavage are admitted to have their limitations and in certain cases to give misleading and incomplete information. Although of inestimable value they certainly need something to supplement them and to add to their present usefulness and to that end I have devised an instrument and a method which I have found entirely satisfactory and which I believe will solve many of our most difficult problems in antral diagnosis.

In 1911, E. M. Holmes so modified the female cystoscope[1] that it could be used for examination of the nose and nasopharynx with great satisfaction. Since that time much advance has been made in its use and its advantages as an aid to diagnosis have been extolled by many in later years, notably by Holmes himself in 1918[2], by Macleod Yearsley in the same year[3], and by L. W. Dean in 1921 and previously[4]. Holmes does not mention the use of the nasopharyngoscope in examining the antrum itself, but Yearsley refers to its use in two antral cases, introducing it into the antrum through an inferior meatal opening, which had been made for drainage.

Introduction of the nasopharyngoscope without a preliminary drainage operation and by the use of a trocar was first mentioned by Elenier von Tovolgyi in 1911[5], and in a careful search of the literature I have been unable to find any other reference to such a method. His instrument was devised for use through the inferior meatus and, from its description, is somewhat complicated.

It is not within the province of this paper to enter into a discussion of the above mentioned procedures, but it is obvious that they have their limitations and disadvantages and might in some cases be impossible. It is sufficient to state that a comprehensive view of the interior of the cavity would be impossible when introducing the nasopharyngoscope by way of the inferior meatus.

At the Colorado Congress of Ophthalmology and Otolaryngology held in Denver, July 29 and 30, 1921, Dennis and Mullen read a paper not yet published on "The Value of Direct Inspection in the Diagnosis of Chronic Maxillary Sinus Disease," in which they called attention to the desirability of inspection of the antrum and advocated exploratory entrance by opening through the canine fossa in all cases requiring diagnosis. Although the desirability of this method of diagnosis appeals to me strongly, such radical means seem hardly justifiable as a diagnostic measure. In discussing their paper I called attention to this simpler means of inspecting the antrum and suggested it as a substitute for their method of actually entering the antrum by operative means. I now wish to present the instrument in its completed form with a description of the method.

The instrument: It consists of a hollow cannula of about 4 mm. inside diameter and 9 cm. long, with a stout, very sharp trocar made to screw into the cannula so that when assembled they fit together tightly as one instrument. A light but strong handle is attached to the cannula. Removal of the trocar permits a Holmes nasopharyngoscope to be introduced through the cannula into the cavity. In addition, a smaller cannula has been made which fits into the outer as does the trocar so that should antral lavage or removal of washings for culture be desired such procedures can be carried out conveniently, the fluid going in through the small inner cannula and returning around it through the outer, escaping into the receptacle through the hollow connection placed on the side for that purpose. The fittings are made for the ordinary slip-on connections.

The method: This procedure is carried out ordinarily under local anesthesia. The solution is injected under the mucosa above the alveolus in the canine fossa and close to the bone of the anterior antral wall. Blocking of the infra-orbital nerve is unnecessary for this simple procedure. The lip is now lifted out of the way with the index finger and with the opposite hand the instrument is introduced by forcing the sharp point of the trocar through the thin anterior wall of the antrum in the canine fossa. A little practice enables one to find the thinnest point in the antral wall, where, in spite of its rather large diameter, the instrument penetrates very easily. The procedure is practically the same as entering the antrum through the inferior meatus with an ordinary trocar and the sensation upon passing into the antrum will be familiar to all rhinologists.

After the puncture the trocar is removed and a long-wound cotton applicator inserted to wipe out what little blood may have en-

tered the cannula upon withdrawal of the trocar. In many cases no blood will be found, but occasionally a few drops will need to be removed to prevent blurring the lens of the nasopharyngoscope. The nasopharyngoscope is now introduced through the cannula when a comprehensive view of the whole interior of the antrum may be had by simply rotating the instrument and moving it in various directions as desired. A very considerable area of the interior of the antrum may also be inspected with the aid of reflected light from the head mirror without the aid of the nasopharyngoscope. By this means a very good idea of the condition of the antral mucosa has been obtained by the writer on several occasions. It is not possible to inspect the whole cavity by this means, of course, and its use alone is not advocated as a routine procedure.

Should there be secretion in the cavity, lavage may be carried out by screwing in place the small inner cannula and proceeding as in antral lavage, except that the return flow will be through the instrument instead of through the natural ostium into the nose. Suction also may be applied and cultures taken by the method described by L. W. Dean[4] if desired.

Although this procedure can be carried out under local anesthesia with perfect satisfaction, ether may be used if desired and may be advisable in infants and young children.

The only bad after effect I have observed in my cases has been some slight swelling and soreness of the cheek, which subsides in a day or two. It is conceivable, however, that in an empyema pus

might follow the withdrawal of the trocar and cause a localized infection in the soft tissues of the cheek. I would therefore not advocate this method as a routine in simple antral lavage, preferring the ordinary method of inferior meatal puncture.

The object of the method and the instrument is to facilitate the introduction of the nasopharyngoscope for inspection of the antrum without a preliminary operation. It can also be introduced through the inferior meatus should that method be desired, but its use through the canine fossa has obvious advantages and, so far as I have observed, no valid objection can be offered to offset them.

In conclusion, I may state that I have been unable to find in the literature any reference to antral puncture through the canine fossa, for this or any other purpose, although it has doubtless been done many times before. However, so far as my own knowledge goes, both the instrument and the method are original with me.

BIBLIOGRAPHY.

1. HOLMES, E. M. Annals of Otology, Rhinology and Laryngology. Vol. XX, p. 29, March, 1911.

2. HOLMES, E. M. Annals of Otology, Rhinology and Laryngology. Vol. XXVII, p. 178, 1918.

3. YEARSLEY, MACLEOD: The Journal of Laryngology, Rhinology and Otology. Vol. XXXIII, No. 1, Jan., 1918.

4. DEAN, L. W. University of Iowa Studies. Vol. II, No. 1. April 15, 1921.

5. VON TOVOLGYI, ELENIER: Archives für Laryngol. und Rhinol. Vol. 25, No. 1, p. 144, 1911.

264 Metropolitan Building.

A NEW TONSIL INSTRUMENT AND METHOD OF USE.

DR. THOMAS E. WALKER, Cleveland, Ohio.

During the past quarter of a century, the operation of choice upon the faucial tonsil has become the intracapsular eneucleation. Various instruments, such as scissors, dissectors, guillotines, and snares have been used to accomplish it. A number of years ago, Dr. Sluder, of St. Louis, presented the method in which it is done with the guillotine. The guillotine, an old instrument invented by Dr. Martin in 1827, was designed to remove a portion of the tonsil by cutting through it. Dr. Sluder's addition was a new technique, in using the guillotine, so that eneucleation was effected. This method is extensively used and the operation is known as the Sluder operation. The objection to it is that it often is followed by a more or less profuse hemorrhage.

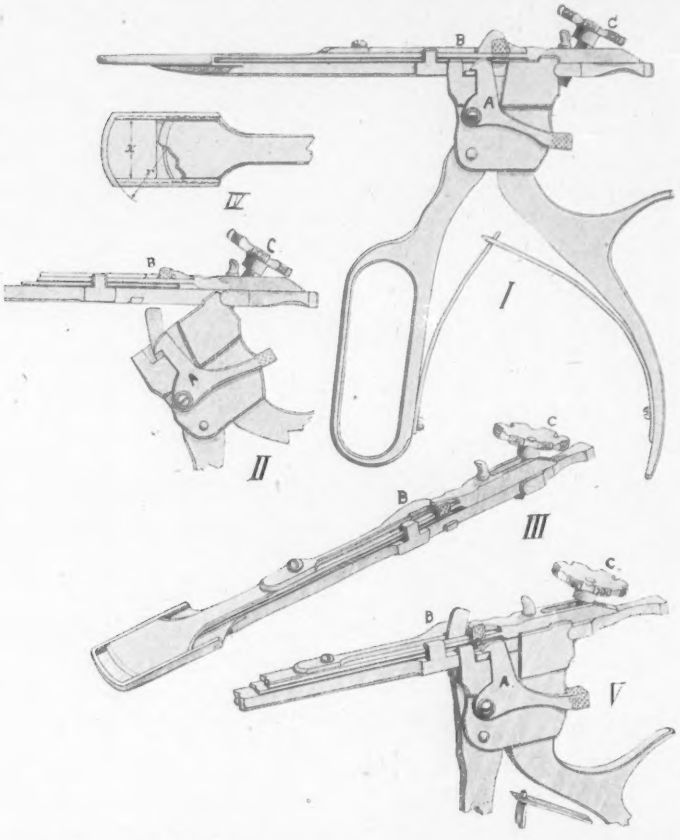
Within the last few years attempts have been made to devise instruments to eliminate hemorrhage. These are generally of the guillotine type, and several are on the markets. Prior to the fall of 1919, I tried to use the various instruments available. They all were successful, in a measure, but were heavy, clumsy and mechanically inadequate. Something seemed to be lacking in each which precluded its universal use. It occurred to me that an instrument, of the hemostatic type, could be made, which would be light, gentle in action and mechanically perfect, or at least made on more perfect mechanical lines. Accordingly, I began work on the problem and have evolved an instrument which approaches these qualities. In describing this instrument, it is necessary to use the accompanying illustrations and to describe its parts separately.

Fig. I shows the instrument complete. It weighs but eight ounces and consists of two parts:—1 A dissecting cutting hemostat, and 2. A detachable handle.

Figs. II and V show the lock by means of which the handle is attached and detached. This is simple and effective, allowing the removal of the handle with the least possible manipulation and with no jarring, or pulling of the hemostat, when it is in place. Slight pressure, with the thumb, on the projecting end of the dog "A" only being necessary to disengage the handle.

Fig. III shows the dissecting hemostat. This consists of a dissecting holding blade working proximal (nearest to the patient), to a cutting blade. Both of these blades are actuated by the

handle, the force being transferred from the dissecting blade to the cutting blade by means of a device attached to the dissecting blade, shown at "B," Figs. III and V. This part of the instrument weighs but three ounces, the weight of an ordinary large hemostat. There is no crushing blade. After the dissecting blade has separated the encapsulated tonsil from the sinus, the window through



which the tonsil has passed is closed, holding closed also the sinus in which the tonsil had been situated. This prevents hemorrhage, and it is not necessary to use crushing force to do it. The dissecting blade is held in the closed window by means of a screw acting against an inclined plane. This allows for varying thicknesses of tissues in different cases. Shown at "C" Figs. II, III, V.

The engaging edge of the dissecting blade is similar in contour to the edge of a wire such as is used in a snare. The dissection is done as the blade is made to close the window. After the window is closed, and held so, the cutting blade is forced to cut against a soft copper plate on the distal side of the window. This is done by pressing "B," and compressing the handle. This cuts the edge of the capsul from the pillars, both anteriorly and posteriorly.

The window through which the tonsil passes is of a peculiar shape, being rectangular, with the distal side curved. This curve is the arc of a circle, whose radius is equal to the width of the window. Shown in Fig. IV, where "r" equals "x." The reason for this shape is to make nearly perfect apposition, when tissues interpose, of the dissecting blade and the distal side of the window. Mechanically perfect apposition here can only be made when the blade is straight and fitting against a straight side. The window then would be rectangular and the shape would not fit the tonsil, and so would not facilitate the operation as well as a round or oval window. Hence, the mechanical equivalent of approximation of the two is used.

The manner of using the instrument is as follows:—with the patient anesthetized, in the dorsal position, using a Whitehead type of mouth-gag, the window of the instrument is held horizontally (or nearly so), and the distal side placed against the posterior pillar of the tonsil on the opposite side. After this, the whole instrument is moved as if it were to be used to throw or scoop the tonsil out of the mouth. This causes the tonsil to bulge upward. Then, with the thumb or finger of the other hand, the tonsil is pushed through the window and the dissecting blade made to push back the anterior pillar, as it is forced under it back over the tonsil. The window is closed, and the screw "C" is turned down until it is tight. The cutting blade is then released, pushed home, and the operation completed. The handle is removed, and the hemostat raised to a vertical position. The tonsil is removed from the throat with a tenaculum. After the hemostat has been left in place for a period of from one to three minutes, it is removed and the same procedure followed on the other side. The operation may be started under primary anesthesia, and the anesthetic continued while the hemostat is in place on the first tonsil, as there is no bleeding.

In the cases of most children, the blood clotting time is four or five minutes. Where this is true the application of the hemostat, to produce a bloodless operation, is usually, one or two minutes.

The operation is particularly adaptable to cases of children. The shortened anesthetic, and the absence of blood make it very desirable. The fact that adenoidectomy is usually done under the same anesthetic, in nowise complicates the procedure.

It will be seen that in the use of this instrument, the tonsil, within its capsul, is dissected away from the sinus, and the sinus held closed, before any cut is made through the mucous membrane at the edge of the pillars. No part of the instrument comes in contact with the denuded floor of the sinus, nor is there any sponging of the sinus. The operation then is an aseptic one, until after the hemostat is removed. There is usually no bleeding following the removal of the hemostat. A serum is poured out, while the hemostat is applied, such as exudes from any denuded surface, which is not bleeding. This serum acts as a protection against subsequent invasion by bacteria, and this, together with the fact that the tissues were handled very gently, producing no trauma, explains why the throats are not sore, and why the period of convalescence is shortened. Many cases show almost completely healed sinuses at the end of the third day after the operation.

A criticism of this method and instrument, is that a portion of the tonsil may be left in the sinus. This is irrelevent, inasmuch as it is a criticism of the operator, and not of the method. Regardless of the instruments employed, or of the manner in which they are employed, one who sees the work of many operators, knows that in some cases a portion of the tonsil is left. The part left should be removed, using a tenaculum and snare. It is less serious to leave a part of a tonsil, which is removable, than to remove portions of pillars, uvula or soft palate, with the result, that after the scar tissue contracts, the throat and pharynx are deformed, never to be restored to what they should be. The important thing, whatever method is used, is to know whether or not a part of the tonsil has been left, and if it has, to remove it at the time.

The advantages of the method using the instrument described are:—

1. The clean removal of the tonsil within its capsul, without injury to the surrounding structures.
2. The gentleness to the throat of the patient, the freedom from trauma, there being no crushing of tissues.
3. The short duration of the anesthetic and of the operation.
4. The usual absence of hemorrhage, and the consequent conservation of the patient's energy.
5. The short convalescent period.

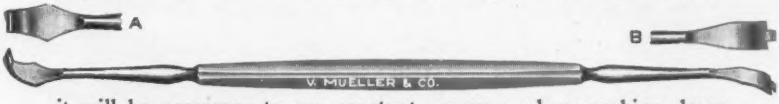
15621 Detroit Avenue.

A NEW PERICHONDRIUM ELEVATOR FOR RESECTION OF THE SEPTUM.

Dr. C. Arbuthnot Campbell, Steubenville, Ohio.

This is a double-ended instrument, one end beginning the elevation of the perichondrium, the other is a cartilage perforator that will not put holes in the mucosa; to be used in submucous resection of the septum. It is especially useful for those having difficulty in commencing the elevation of the perichondrium after having made the primary incision through the mucosa; the other end of the instrument makes numerous perforations through the cartilage, but does not injure the mucosa on the opposite side.

The cut shows the instrument in detail. The end "A" is used after the primary incision through the mucosa, to begin the elevation of the perichondrium. After the incision has been dried, place the blade of "A" end of the instrument in the incision and firmly work the blade backward and forward in one spot until the cartilage is reached. Repeat this procedure along the whole course of the incision until the cartilage is well denuded. In some patients who have thick mucous membranes, or very adherent membranes,



it will be necessary to use constant pressure when working down to the cartilage. However, after the cartilage has been cleared of the perichondrium along the entire course of the primary incision and pushed backward for an half inch, it is simple to dissect the membrane up from the septum.

The "B" end of the instrument is used to puncture the cartilage without injury to the membrane on the opposite side. As shown in the illustration, this consists of a curved blade with a stud extending from the center third, less than one-sixteenth long, attached to a guard which prevents the stud penetrating the mucosa on the opposite side. The line where the cartilage is to be gone through is punctured as many times as possible (with the finger in the other nostril, if desired), then gradually forcing an ordinary submucous elevator through the weakened cartilage at an oblique angle, then dissecting the mucosa as desired.

Both of the above procedures are harm-proof. It may require two or possibly three efforts before becoming expert with it, but not more if the necessary pressure is applied as described above.

The instrument was made for me by V. Mueller & Co., of Chicago, Ill.

BOOK REVIEWS.

Annals of Roentgenology—Mastoids Roentgenologically Considered. Forty-two Roentgen Ray Studies on 21 Photographic Plates and 11 Text Illustrations. By Frederick M. Law, M. D., Roentgenologist, Manhattan Eye, Ear, Nose and Throat Hospital, New York. Paul B. Hoeber, New York.

The pratical value of Roentgenology to the otologist is comprehensively considered by Dr. Law in his excellent monographic in its relation to the mastoid.

There are forty-two plates of roentgen ray studies of the mastoid, beautifully produced, minutely described and carefully analyzed. These plates cover a wide range of mastoid pathology and its complications and a careful study of this series will clarify much that is still indefinite to the otologist in the interpretation of this field.

The monograph includes a key-plate which clearly indicates the anatomical landmarks of the radiogram, a description of the different types of the temporal bone, an enumeration of the pathological conditions that may be revealed by definite shadows on the plate, and a detailed, well-illustrated and minutely described chapter on the general technic as applied especially to mastoid roentgenology.

Anticipating the far-reaching value of this monograph, the author describes his series of radiograms in English, French and Spanish, arranged in parallel columns.

It is the best working volume of mastoid pathology roentgenology that we have yet seen. Every ear surgeon should study and digest it carefully.

Human Heredity. By Casper L Redfield. Heredity Publishing Company, Chicago.

The key-note of the author of this interesting monograph on Heredity is his emphatic statement that "there is no means of improving the human race other than through the development of powers in individuals by exercise." His examples of the development of powers by idleness are new either in substance or application or in the interpretation put upon them.

The historical review of the rise of man from savagery to civilization brings out many facts which throw light on the process of evolution. Mr. Redfield gives a new definition for disease and a new application of the character and origin of immunity.

The germ plasm, hybridization and birth control are interestingly considered

Diseases of the Throat, Nose and Ear. By Dan McKenzie, M. D., F. R. C. S. E., Surgeon, Central London Throat and Ear Hospital; Oto-Laryngologist to the French Hospital, London; Hon. Cons. Laryngologist to the Emergency Hospital, Ilford; Editor of "The Journal of Laryngology, Rhinology and Otology." With two coloured Plates and 199 Figures in the Text. C. V. Mosby Co., St. Louis.

Modern textbooks in special medicine in addition to furnishing up-to-date subject-matter comprehensive of the field to which they apply, must bear the stamp of individuality. This is eminently true of the volume of Dan McKenzie inscribed to Dundas-Grant.

The author as surgeon of the Central London Throat and Ear Hospital and in his long service as editor of the Journal of Larynology, Rhin-

ology and Otology, has been specially qualified to offer an unusually practical and well-constructed textbook. Special mention may be made of the initial chapter on Note-Taking and General Semeiology, Affections of the Larynx, Diseases of the Nasal Accessory Sinuses and the Functional Examination of the Ear. Many of the plates are of exceptional merit and clarity. Some important phases of oto-laryngologic work are perhaps given too scant consideration and insufficient reference for subsequent reading. This is especially true of the Re-education of Hearing, The Plastic Surgery of the External Ear and the technical description of some of the special operations in the accessory nasal sinuses.

It does not exclusively present the work of the British oto-laryngologists, neither does it sufficiently specify when reference is made to the original ideas of Continental or American specialists.

The text is lucid, logical and well-presented. The classification of subject-matter and the arrangement of paragraphs is exceptionally good.

The American Year-Book of Anesthesia and Analgesia, 1917-1918. F. H. McMechan, A. M., M. D., Editor. Surgery Publishing Company, New York City.

This year book has been delayed by the exigencies of the World War. It considers all phases of the science and pratice of anesthesia and analgesia and many of the controversial disputes and facts needed for their settlement.

Among the subjects considered that might be of special interest to the oto-laryngologist are Oral Hygiene in Relation to Anesthesia and the Anesthetist; The Prophylactic Use of Pituitrin in Nose and Throat Operations Under General and Local Anesthesia; Oral and Sinus Surgery under Nitrous Oxid-Oxygen in the Forward Inclined Sitting Posture; Tonsillectomy in the Upright Position under Ether; Some Advantages of the Sitting Posture in Nose and Throat Operations under Ether; The Nasal Administration of Nitrous Oxid-Oxygen Anesthesia under Low Pressure; Anesthesia in Facial Surgery; Apothesin, a New Local Anesthetic, etc., etc.

A Stereoscopic Atlas of Plastic Surgery of the Face, Head and Neck. With Case Reports. By Joseph C. Beck, M. D., F. A. C. S., and Ira Frank, M. D., F. A. C. S., Chicago, Illinois. C. V. Mosby Co., St. Louis.

The simplification in the use of the stereoscope and the improvement in stereoscopic photography has made this valuable accessory possible as a means of study to the oto-laryngologist.

To those who are not familiar with the photographic reproduction in the study of pathology by which three dimensions are made visible to the eye, an insight into this interesting and practical form of study will prove a revelation. There are thorty-three stereoscopic plates in this interesting collection of plastic surgery of the face, head and neck. A careful and frequent inspection of this series will be a source of much information to the oto-laryngologist.

***Exophthalmic Goiter and Its Non-surgical Treatment.* By Israel Bram, M. D., Instructor in Clinical Medicine, Jefferson Medical College, Philadelphia, Pa.; Physician on Visiting Staff of Philadelphia General Hospital; Member of the Society for Study of Internal Secretions, etc. C. V. Mosby Co., St. Louis.**

As the author states in his preface, the non-surgical treatment of goiter is the real excuse for the existence of this work. The volume is not intended to serve as a comprehensive work on the advances made in thyroid exprimentation nor does the author

submit new views concerning the mechanism of the ductless glands, but some of the important results in the study of endocrinology, especialy those bearing practical relationship to Graves' Disease as well as salient points concerned in the successful therapeutics of this condition are particularly emphasized.

The author endeavors to convince the reader that exophthalmic goiter does not belong in the realm of surgery and makes a plea for early diagnosis and the institution of proper non-surgical treatment in this class of cases.

A Guide to Diseases of the Nose and Throat and Their Treatment. By Charles A. Parker, F. R. C. S., Edinburgh, Consulting Surgeon to the Throat Hospital, Golden Square, W., and Lionel College, M. B., F. R. C. S., Surgeon to the Ear and Throat Department, St. George's Hospital, S. W., and to the Throat Hospital, Golden Square, W. Edward Arnold, London.

The original purpose of this volume was to assist post-graduate students in the study of diseases of the upper respiratory tract. Many chapters have been rewritten and much new matter added to this edition. The volume is replete with practical instrumental and therapeutic suggetions and brief descriptions of all recent developments in rhino-laryngology.

The Eye, Ear, Nose and Throat Year Book. Vol. III. Edited by Casey A. Wood, C. M., M. D., D. C. L. Albert H. Andrews, M. D. George E. Shambough, M. D. The year Book Publishers, 304 South Dearborn St., Chicago.

This year book now consists of comprehensive, selected and carefully prepared abstracts of the most important contributions and developments in the literature of our specialties included within the year's calendar. Much of this subject-matter may be found in the various oto-laryngologic journals, but it is more exhaustively considered in this volume. It is virtually an annual review of oto-laryngologic progress.

The Otological Section is edited by Albert H. Andrews, the Rhino-Laryngological Section by George E. Shambaugh.

Handbook for Tuberculosis Workers. By Noel Bardswell, M. V. O., F. R. C. P., Principal Assistant Medical Officer, Public Health Dept., London County Council. Published by John Bale, Sons, and Danielson, Ltd., Oxford St., W. I.

This little handbook is a concise statement of all the facts relating to Tuberculosis for the use of social service workers and public health nurses. The wording is simple and practical. The matter relates to conditions in England but applies equally well to American conditions.

THE NEW YORK ACADEMY OF MEDICINE.

SECTION ON OTOLOGY.

May 13, 1921

Continued from page 910

The fulminating type is a very different proposition. Dr. Eagleton said that in his belief the time is coming when a large number of these cases will be saved, for there is now a rational procedure which has been proved to be correct,—that is, the irrigation of the sub-arachnoid space through an opening, or perhaps two or three openings, and the passage of a lumbar puncture needle through the occipital route and the washing through it of a modified Ringer's solution, which in non-toxic. This method was elaborated in the laboratory at Baltimore, and has proved practicable. It is a tiresome procedure and requires time to do it. The brain is very tolerant of any low temperature,—the throwing in of distilled water produces a high temperature (?) but it is tolerant of a modified Ringer's solution with a proper amount of sodium potassium and chlorides.

The first case on which he had undertaken this treatment was a child with a suppurative meningitis of the fulminating type, yet no micro-organism was present in the spinal fluid. As Dr. Dench had said, this was one of the concomitant types. He had cold feet over that case, although it was a safe procedure. Later, however, in the case of another child dying with suppurative meningitis, he performed the procedure and much to his amazement the child was almost immediately better. This was repeated four times, and the child died the day the mother asked him to do it again. That demonstrated that it was perfectly safe. The solution does not have to be at boiling temperature. The apparatus is very cumbersome—one man has to hold the needle, etc. etc., but it is perfectly safe.

As a further proof of this fact, he cited the case of a woman who entered the hospital with a fractured skull and complained bitterly of headache. On the 15th day after her fracture she got out of bed, and fell, striking her head again, and became unconscious,—remaining so for five hours. She complained of this terrible headache all the time. Lumbar puncture was performed and showed a cloudy fluid, with micro-organisms. It was Gram negative. The woman was in very good condition and was washed out, and the effect was marked. In the washing, the first fluid that came through the opening was very cloudy but it gradually became clearer. The effect on the woman (although she was given serum by the cord) was equally marked. The next day she regarded herself as well. The headache was gone for the first time and although she still had a slight temperature the effect was so wonderful that it convinced him that if these cases are taken early and treated by washing out the arachnoid space they will get well. If one examines a case of terminal meningitis at autopsy, it will be found full of exudate which it is impossible to remove, but we must undertake to wash the cases out before this exudate is formed. In one case of a child there was a constant clogging of the canula by this exudate. The treatment was delayed too long.

Dr. Eagleton said he was to report these two cases before the American Otological Society for he was convinced the procedure was practical and safe if properly done, and it was the only logical procedure. It is an attempt to eradicate the bacteria. Many hills would have to be

traveled, but it was a procedure which if taken early would perhaps cure cases that are already infected in the cerebro-spinal fluid,—in other words, by the performance of a lumbar puncture in the presence of an infection of the general blood stream, causing meningitis. He then cited the case of a woman with a phlebitis of the leg who was thought to have a fracture of the skull. No fracture was found, but a routine lumbar puncture was performed and the fluid was found sterile. Immediately after the puncture she developed meningeal symptoms as a result. It bore out the evidence that in the presence of a blood infection, interference with the normal protective mechanism (of the) cerebro-spinal fluid is followed by meningitis in a certain proportion of cases.

DR. DWYER said that although Dr. Smith's paper was a very timely one, yet after listening to him and to Dr. Dench we were just where we were at the start, so far as treatment was concerned,—unless the treatment described by Dr. Eagleton should prove to be effective. It was very gratifying to hear the latter emphasize the protective mechanism; so far as serous meningitis was concerned it was probably true. He did not agree with Dr. Smith that serous meningitis is the primary stage of purulent meningitis. It occurs more frequently than is supposed. It is a protective mechanism due to localized meningitis with the bacteria on the outside of the dura.

Referring to Dr. Smith's statement that the normal reaction was alkaline, Dr. Dwyer said that in the last nine and a half years he had had 167 cases of meningitis every one of which gave free lactic acid. With the reagents used it can be acid with one reaction and alkaline with another. It would be interesting to know what agent was used in the cases referred to.

Dr. Dwyer said that he did not think meningitis could ever be cured by surgical measures. The laboratory had not made any progress with treatment by serum, but to expect to cure by surgical measures a meningitis extending from the back of the head to the spine was beyond his power to understand. Doing a decompression, both in the dura, etc., was all right, for it relieves the pressure. It is well known that the streptococcus mucosus capsulatus,—which by the way is a term that should be dropped; it is the No. 3 pneumococcus, an organism covered by a capsule that is three or four times the size of the organism itself; there is no serum that will touch it, for the capsulem is such that the organism is thoroughly protected. These cases go on for three or four weeks to a month in the ward. In one case a patient was walking about at 3 o'clock, and was unconscious at 6 o'clock. One of Dr. Kopetsky's cases, was going about 15 minutes before he died. The patients were not touched so far as relief of pressure was concerned. That occurs as a low grade meningitis.

He agreed with Dr. Dench that it is the exception when diplopia has anything to do with meningitis. The sixth nerve is the longest nerve that has anything to do with the eye. Four years ago he had reported three cases, one with Gradinigos syndrome, another with intraspinal and another one with meningitis. He did not believe that except in the fulminating type we have to perform lumbar puncture so often.

With regard to concomitant blood stream infection, that is very rare. Two weeks ago a patient was seen who complained of pain in the ear. The ear was operated at 4 o'clock; at 11 o'clock . . . . . and was dead at 6 o'clock Sunday morning, with a very purulent fluid. The blood culture was negative. The blood had nothing to do with it. We should dwell more on the tissue reactions that take place between the organisms on one hand and the body on the other. These cases go out very quickly.

Another point: The pneumococci, 1, 2, and 4 get well.

Dr. Dwyer said he particularly wished to emphasize the point made by Dr. Eagleton,—that there is a focus in the ear and a protective serous meningitis, with an exudate in the spinal fluid. He had never been able to make clear in his own mind what a purulent meningitis is,—

whether there is such a thing as serous meningitis leading to a purulent form. Out of 167 cases, three got well. In one, serum was used, in another, urotropin.

DR. SCRUTON, referring to meningitis in children, said that nothing had been mentioned about the possibility of symptoms being merely those of meningismus, with operation for mastoidectomy relieving. These cases are very common in children, and he had a vague remembrance of one case in an adult. There are many features about meningitis that are very trying, the chief of which is the difficulty in determining a proper procedure in the treatment of any given case. It does not seem possible at the present time to formulate definite rules applicable to all cases. However, it may be said that in general all cases of meningitis in which the spinal fluid does not show bacterial growth, should be treated by lumbar puncture, repeated sufficiently to relieve pressure symptoms, and a large area of dura should be exposed for the same purpose. In those cases which show bacterial growth, the outcome is almost invariably fatal. For this reason more radical procedure is suggested. The dura in the mastoid region should be incised in several places and the patency of the incision maintained by the insertion of small strips of rubber tissue or cellulose tissue.

DR. ALFRED KAHN said that one of the chief things that impressed him when he first began the study of otology was the absolute helplessness of the surgeon to do anything for the sufferers from meningitis. Passing through the ward from time to time a child would be going through all the contortions of meningitis, pain and stiffness, and although the surgeon felt strongly that he would like to do something to help his suffering patient, the condition was hopeless. To his mind decompression was done at this time as a possible means of helping a hopeless condition. Frankly speaking he believes that the surgeon has small confidence in decompression.

He had read the literature on the subject, and especially mentioned Dr. Smith's and Dr. Dench's papers read at Chicago about ten years ago at a convention of the American Medical Association. Nothing has been added to the subject since that date. The older men had handed down an immense amount of clinical material which was worth a great deal to future students of the subject. The younger men should carry on. Dr. Kahn said that he himself was continually trying to reach out into the dark, and that possibly a great deal of what he had to say would be construed as exceedingly radical.

He believed judging from his experience and observation that certain things had taken place in the study of meningitis which had not been noted. He particularly called attentioned to the fact that of all brain complications following ear disease, meningitis was the least frequent. Cerebellar and cerebrum abscesses, and other complications, were reported from time to time, but in comparison, meningitis was less frequent.

He stated and asked the question as to the fact, whether it was not rather peculiar that, for example, an abscess should be located quite frequently in the substance of the brain, especially when taking into consideration the fact that the meninges were not involved in a meningitis, and also that the diseased ear was quite a distance away on the other side of a ditch—a ditch which he called the subdural space. Wasn't it peculiar that germ life should be able to leap this space without affecting it and yet cause an abscess on the other side of it? He stated it as his belief that the great function, the primary function of the subdural space, as it were, was in the face of attack to absorb any foreign substance, that the foreign substance (bacteria etc.) was carried back through the lymphatics and other vessels through a dangerous area (the brain substance) where localization took place and an abscess formed. He compared the subdural space to the peritoneal space. He stated that it was his opinion that the subdural space absorbed quicker than the peritoneal space, that absorption was the primary function of the subdural space, that localization was secondary. In the peritoneum, on the other hand,

the primary function was not absorption, but was localization. The peritoneum was quicker to localize an invasion than the subdural space. These functions of course went hand in hand, at the same time, but in one case absorption was found to be the most powerful weapon, in the second case localization was the method of selection.

He believed that while pressure played an important part in the death of these patients, that the most important element causing death was toxemia. He stated that if pure pus in sufficient quantity were placed into the peritoneal cavity of a dog, that it would be absorbed, that localization would not be apt to take place, that death would occur from absorption before localization could take place. That on autopsy the peritoneal cavity would appear like an infected subdural space. Here in the peritoneal cavity there are no cardinal centres like the centre of respiration or the centre which controlled heart action, as in the brain, to be pressed upon, and yet the dog dies. The dog surely dies in this instance from absorption, and it is a pure case of toxemia. He thought therefore that the toxemia was the important element entering into the death of these patients, and he therefore stated that it was his belief that the future successful therapeusis to be applied to meningitis would come through controlling this toxemia.

Dr Kahn stated that Dr. Eagleton's remarks regarding washing these infected spaces brought to mind a train of thought which he himself had been engaged on. Dr. Kahn, however, had gone so far as to invent a needle that could be detached from a syringe and passed through from one section of the brain through a plural opening to another without infecting the intervening brain substance. Dr. Kahn would show this instrument and would have more to say about the subject at some future time. Dr. Eagleton mentioned something which until recently Dr. Kahn thought was new. That was Dr. Eagleton's reference to plural openings. Dr. Kahn was greatly surprised, however, in reviewing the literature to find that the idea was about 7,000 years old, that even prehistoric people had used decompression, and that skulls were found often with many openings at different points.

Dr. Kahn thought that decompression had some value, but as to how much value, was problematic, that we could not definitely say in a given case that the decompression had improved the patients chances. When the decompression was determined upon, however, it should be as extensive as possible, a wide area should be exposed. He believed it was, however, extremely dangerous to open the subdural space at the point of infection.

Regarding the therapeusis. When it comes to relieving a toxic condition, the condition is similar to that of any other poison in the system. Dr. Kahn drew a diagram and then he illustrated and said that if a certain amount of strychnine for example, is injected into the body, certain symptoms will follow, (in case of strychnine, stiffening of the neck, etc.) If the amount of strychnine is sufficiently large, the patient will die from the poisoning. It does not make any difference as to how much blood the subject has in his body, a poisonous dose of strychnine will kill him. The same thing applies to toxins. It is the amount of toxin in the system that kills. If the blood vessels are engorged with further blood, let us say for example, by a direct transfusion, the amount of strychnine is still the same, and the patient will likewise die. If you can introduce, however, into the system a drug which will counterbalance the strychnine, the poisonous dose is equalized and the patient does not die. If you can introduce into the system antitoxin to sufficiently balance the toxins, the patient will not die. If you can carry away from the system sufficient of the poison to reduce it below a toxic dose, the patient will not die. This can be done by allowing a certain amount of blood to pass out of the subject and reinforcing the circulation by other blood until the toxic dose is reduced below a poisonous dose, and the patient will not die. Dr. Kahn did this experimentally and he calls the method Continuous Transfusion.

Dr. Kahn stated that the impression seemed to be that patients died from the infection of a germ. He did not believe this to be the case. He stated what his experiments had led him to deduce, and he therefore made the statement that it was not germ life that caused the death of these subjects, that it was not the bacteria themselves that caused death, but that death resulted from the absorption of the strife between the germs, on the one hand, and the reaction of the cells at the localized spot of invasion That it was the debris that when absorbed caused death, and therefore a pure toxemia.

Dr. C. F. Stokes said that he had come to the conclusion, as the result of a recent research, that the pituitary body has to do with the special sense fields, including the elaborated auditory apparatus; that as a result of infectious disease, focal infections, stresses of various kinds, resistance to secondary infections is lowered through disfunctions of the pituitary, which in many cases is of long duration,—sometimes apparently permanently. He believes that this hypothesis, if correct, will explain the unhappy results from local treatment in large numbers of cases. Electronization of the pituitary-auditory field has appeared to afford relief in many cases, particularly when coupled with local treatment in the hands of competent otologists. He believes that this method should supplement, not supplant, operative procedures for the establishment of drainage, removal of focal infections, etc., in the mastoid region, middle ear, and elsewhere. No matter how completely these procedures meet the indications, we shall still be dealing with an operative field of low vitality, low resistance behind which is a sluggish regulator of metabolism, —the pituitary and probably other endocrine glands, and associated autonomic and other nerve mechanisms.

Dr. Kopetzky said that he had done some work on meningitis; and while it was conceded that a discussion such as this did not necessarily mark new progress in the work, yet it was necessary, in dealing with the problems presented by meningitis, that those engaged in these problems—both the clinicians and those working in the laboratory—should occasionally meet, so as to check up their observations. The discussion tonight had been very interesting, and had brought out some ideas which might be of use in dealing with the problem.

It was clear that in discussing these subjects the same language was not used by all of us; and therefore some of us were discussing different things under similar names. Would it not be an advantage to eliminate entirely the term serous meningitis, and call the condition something else? Dr. Dwyer's statement that serous meningitis never becomes purulent, and Dr. Eagleton's statement that the use of the term protective meningitis should be made, were both true; but in Dr. Kopetzky's opinion they were speaking of different things. For, by analogy, if we study the middle ear, we often note that the transudate seen in the early stage comes out later as an exudate; yet, in both conditions, which are essentially different, there is fluid in the middle ear. In the cases we are discussing now, in all of them except perhaps meningismus there is fluid in the subarachnoid space. What is needed, is a means of differentiating the different conditions so that we may know what the clinical picture shows. Could we but have a means of knowing which case presented the symptoms of a protective meningitis, which the symptoms of a serous meningitis and which the symptoms of a case which was only the initial stage of a purulent meningitis a great step would have been made. It is hardly conceivable that the purulent type will jump into being enmasse, although we know that its stages of development may be very short in regard to duration of time. As we stand tonight, there is no method of determining the differences between these types, either from a clinical, or from a laboratory standpoint. We are all aware of cases of which we were perfectly sure that they were one type on a given day, and yet a few days later we were forced to change our opinion as they took on distinctly infective characteristics. It

is easy to say that where they do not become infective they are not of that type, but in making prognoses and in handling the cases, this constitutes, at the present time, an important missing factor in our calculations.

We should keep in mind the salient points of the paper presented by Dr. MacCuen Smith and of those presented by Drs. Dench and Eagleton. They have given us important points of view. In regard to Dr. Dwyer's statement, Dr. Kopetzky said that he was of the opinion that the real reaction as to acidity is caused by the lactic acid in the fluid. Technically, the reaction of the fluid is that of a combined lessened alkalinity rather than a chemical acidity. All the fluids of the body, excepting perhaps the urine, are technically alkaline. It is the lessened alkalinity which we measure by an arbitrary standard which we call, for practical purposes, an acidity.

Dr. Kopetzky said he was trying, simply, to correlate the observations of competent men so that it would be more possible to understand what was meant in summing up the questions under discussion. Dr. Kahn's analogy between the brain and the peritoneum was born out to a certain extent only, because there is no tissue in the abdomen which, in itself, produces a poison which kills; nor is there one which, when injected into another abdomen, produces symptoms identical to those of the original patient. Nothing that one does in the abdomen produces such a situation. Dr. Kahn was correct in saying that it was not the bacteria nor the result of bacterial activity,—not the toxins of the bacteria, which kills the patient; but it was the patient's cell tissue in the brain, poisoning the cell activity of the brain, itself, which, by reason of the disease, by reason of the lesion, failed to be removed, and this choked up the cells and caused a cessation of their activity. When the foramen magnum was experimentally opened and drained, it was thought that the royal road to success had been obtained. Those patients had no symptoms whatsoever up to twenty-one days. Then they died of cerebral poisoning, and when such brains were sectioned, they were found to show a cerebritis. The cells filled up with the products of their own metabolism; and cell activity in the brain tissue ceased; and the patients died. It is similar to the production of alcohol by yeasts. When the alcohol reaches a certain percentage of strength, if it is not removed, it kills the yeast. These patients were relieved of the symptoms of pressure in the interval. One concludes, therefore, that the tissue reactions in the brain itself offer a fruitful field for study.

If the washing of the brain, as suggested by Dr. Eagleton, leads to the removal of the results of cell activity in the brain and limits the formation of cerebritis, which we know kills the patient, then, from the theoretical aspect, the hope held out by Dr. Eagleton has a basis which should encourage us.

Dr. Kopetzky said that Dr. Dench's discussions were always fruitful and suggestive. His reports and allusions to reports of cases of blindness brought back to mind a case seen some time ago, which he hoped to report at some future meeting. The patient was a child who was blind for almost two months. The cell count and the cerebral picture were such that it was still doubtful whether it was a case of encephalitis lethargica or of meningitis.

Finally, the statement in regard to the endocrine treatment, made by one of the speakers, should not be allowed to pass, for the endocrinologist should be checked up in all branches of the profession. They are dealing with a new aspect of medicine and, like converts, are over enthusiastic and make claims which must be substantiated by the cool observations of recognized clinical observers and laboratory workers. At the present time, we can say that, whatever the conception of the pituitary body may be, it should go on record in this Section that we consider it a gland center of the brain which is a purely neurological organ. My idea of it is that it is a regulating center of glandular ac-

tivity, placed in the brain where all the other regulating centers of the body are placed, its function not yet clearly understood, but not really possessing the characteristics of a gland. While its substance itself is acknowledged to have therapeutic action, we know of no secretion from its acting on the body. It is the regulator of the sympathetic nervous system, as far as we are, at the present, able to determine. We do know that the endocrines, or the ductless glands react to infections; but whether or not the regulating center can control an infection in the brain or its coverings, we do not know; and we should be very slow in subscribing to the statement made here.

DR. S. MACCUEN SMITH said he had enjoyed the discussion more than he had words to express, and would take home memories of the consideration he had received. Notwithstanding the fact that definite conclusions had not yet been reached, many points that had been presented would doubtless prove helpful in treating meningitis.

Dr Smith said he was still of the opinion that meningitis is a surgical disease, in spite of opinions expressed to the contrary. If cases of meningitis had been caused by surgical interventon, it was unfortunate, but he had not seen such cases personally. It was readily conceivable that in certain instances surgical intervention might cause unfortunate results and hasten the end, but at the same time, while there was reason to feel that the majority of the patients had done well through surgery's aid, he would not like to fail to give the patient that opportunity. He had seen so many cases treated otherwise, with almost uniformly fatal results, that he was still convinced, as stated in his paper, that the first step was to eliminate the focus of infection in the organ of hearing. If this were accomplished during the early stage of the disease, the chances were that the condition might be arrested, in which event the patient would be likely to recover, regardless of what the subsequent treatment might be.

Dr. Smith was glad to know that Dr. Dench concurred in the opinion that serous meningitis, as well as some other forms of this disease, is frequently a primary symptom of the more advanced form. He recognized concomitant meningitis, as described by Dr. Dench, and felt that perhaps this might be the true diagnosis of the last case reported in his paper.

Dr. Eagleton's term "protective meningitis" was scarcely different from the circumscribed meningitis that had long since been recognized in medical literature. As stated, the chief objects in treatment were to provide for drainage and eliminate the toxemia. If Dr. Eagleton's experiments in washing out the subarachnoid space would accomplish this need, they would have provided a great advance in the treatment of meningitis. This procedure was definitely surgical.

Dr. Kahn had said that serous meningitis, if not arrested, might very likely become diffuse and suppurative. Dr. Smith believed that was quite right. If the cases could be arrested in the early stages, many would be saved, but if otitic meningitis were allowed to go on, many cases would be lost, for unless the primary source of infection were removed, favorable results could scarcely be expected.

In answer to Dr. Dwyer's query as to the methods employed to determine the alkalinity of the normal spinal fluid, Dr. Smith said that these examinations were never personally carried out, but were made in the hospital laboratories, where presumably a competent technician made the examinations. He had, however, the authority of Kopetzky and Randle Rosenberger, as well as others, that the normal cerebrospinal fluid was alkaline, and, according to Kopetzky, continued to be alkaline until the inflamatory.....reactions were influenced by bacterial invasions. Then the reaction showed an acidity of varying degree. Furthermore, it seemed to be an established physiological fact that normal spinal fluid contained sugar, which promptly disappeared in the presence of acute bacterial invasion. As the bacteria disappeared,

this carbohydrate reappeared, thus giving, as Kopetzky had pointed out, a valuable point in prognosis. In a case of cloudy spinal fluid, high cell count, an excess of globulins, the presence of albumen, an acid reaction and the absence of sugar, he was quite willing to accept the condition as at least suggestive of meningitis, in the presence of an aural suppuration.

He had never seen a case that was benefited in the least by the injection of serum. Following McKernon's advice, he had injected urotropin, but without any results; he had also tried injections of serum into the vein, and other methods, and had given urotropin by mouth, but had achieved no results. Personally he had come back to the thought that the only hope at present lay in surgery.

SECTION ON RHINOLOGY AND LARYNGOLOGY

May 19, 1921.

Analysis of the Systemic and Local Conditions Following Tonsillectomy and Adenoidotomy. Dr. C. G. Coakley and Dr. E. L. Pratt.

(*To be published in full in a subsequent issue of* THE LARYNGOSCOPE.)

DISCUSSION

DR. SAMUEL A. BROWN: it seems to me that this analysis by Dr. Coakley and Dr. Pratt of this large group presents to us a very interesting number of facts. The thing which appeals to me is the direct and definite way in which Dr. Coakley has answered so many of the questions which are constantly put to us as clinicians, relative to the possibility of hemorrhage, and other factors of that type. This paper cannot be helpful to those of us who must answer these questions.

I was interested in Dr. Pratt's mention of the cardiac case in which the symptoms disappeared after the removal of the tonsils. I cannot conceive that this was a true endocarditis associated with the murmur, but it seems to me that it must have been a relative murmur or functimas murmur associated with an anemia. But, after all, is it not the toxemia which is causing, even in this case, the muscular deficiency, and the thing which we are particularly interested in is the removal of the tonsils as the source of infection? We all of us have seen marked cardiac improvement after the tonsillar removal, and it seems to me we must emphasize this question of the toxemia, and the good effects of the tonsillar removal might come from the improvement in the general condition and the elimination of the toxin.

In relation to the rheumatic cases, I think, from my experience, we must advise in acute rheumatic conditions, and rheumatic fever, the removal of the tonsils, with this reservation, that this condition is so commonly associated with infection other than that in the tonsil that we are apt to be enthusiasts, and unless we make plain to the family that the associated foci of infection may be the cause of a reinfection, this justifiable operation will be very severely criticised. In my experience that has happened any number of times. Another observation is that the removal of the tonsils may be associated with an acute exacerbation of symptoms. I should like to ask Dr. Coakley for an expression of opinion on that subject, and also whether it is advisable during the active period of rheumatic fever to undertake the removal of the tonsils.

DR. WALTER L. NILES: It seems to me that this very interesting analysis brings forward a very important question—the relation of tonsillectomies to the state of the general health and systematic conditions—from a new angle, that is, from the standpoint of the patient. The

patient has been allowed to judge the results of the operation, and that, perhaps after all, is a very good test.

I think that it is very evident that the matter of the procedure must have played a very important part in the admirable results that have been reported. I have been particularly interested in the systematic conditions, and especially so in the report regarding the complete freedom from pulmonary abscess following tonsillectomy in this series. It seems to me that the authors were justified in reporting the conclusion that they did in the one case which developed a pulmonary abscess. But I personally have come to regard pulmonary abscess as not a very infrequent sequel. It is such a very serious complication that it must be borne in mind always. I have seen Dr. Coakley operate a considerable number of times, and I imagine that keeping the pharynx free from secretion and blood throughout the operation must be a very important factor in reducing the frequency of this very serious complication. This usually does not manifest itself for a number of days after the operation, when the patient begins to cough a little, and have a little fever and the early diagnosis is very difficult. The condition is frequently mistaken for tuberculosis. At Saranac I saw a large number of cases of pulmonary abscess which were sent there for tuberculosis. The X-ray does not help us very much. But in the presence of such symptoms, if the patient has recently had a tonsillectomy, we should suspect pulmonary abscess.

In regard to the heart conditions, I think that this will emphasize the very great importance of the tonsils as a focus of infection as an atrium for systematic infection. I doubt very much if many cases of endo-carditis proceed directly from the tonsil, and I wonder if the case which was reported in detail was not suffering with the disease at the time the tonsillectomy was done. I imagine that the infection is present in the heart valves for a great many years before the acute symptoms develop, so in many cases of endo-carditis the removal of the tonsils as a preventive of subacute bacterial endo-carditis I think would generally prove rather disappointing. On the other hand as a cause of infection resulting in acute rheumatic fever I think there can be no doubt whatever, and it is my impression that all patients who have had definite acute rheumatic fever should have tonsillectomies performed. In other words, I regard an acute rheumatic fever as different from the subacute bacterial endo-carditis developing later.

I was also much interested in the kidney cases reported. One sees a great many cases of low grade nephritis, really parenchymatous, with a tendency to edema, but without hypertension or eye symptoms. I have seen a number of patients in which the symptoms of nephritis have cleared up after tonsillectomy, and this small number of cases bears out my feeling in regard to them.

In regard to chronic arthritis, it seems to me that those cases have to be very carefully studied with regard to the probability of infection, and I know that Dr. Coakley does that very thoroughly indeed; that he does not advise removal of the tonsils simply because the patient has a chronic arthritis, and I am sure much of the dissatisfaction that has manifested itself because of the poor results following tonsillectomy for chronic arthritis, is because their patients have not been carefully observed, and a reasonable determination made as to whether their tonsils were infected. Some of Dr. Coakley's cases subsequently studied, illustrate the fact that there are many other foci where active infection may be present, and which may very well lead to systemic manifestations So you should not at once take out the tonsils in every case of chronic arthritis, but investigate every possible focus infection.

I feel that this most interesting and exhaustive paper will help us as practitioners very much indeed in determining the probable outcome of a tonsillectomy, and will also emphasize the importance of very careful consideration of the individual cases and teach us not to deal with them lightly.

DR. WOLFF FREUDENTHAL: The information we have received tonight is very interesting. I can only congratulate Dr. Coakley and Dr. Pratt on their very excellent results. Eighty-six per cent of good results after tonsillectomy is remarkable, and I am convinced it is entirely due to the skill and experience of those gentlemen. My experience goes back some thirty years, but I do not care to hope that my results are as good as those mentioned here tonight. I have a very peculiar standpoint as regards tonsils. My friends here know that. Dr Coakley reported tonsillectomies done on quite a number of children under three years of age. On such young children unless the tonsils are absolutely hidden behind the pillars I do the old-fashioned tonsillotomy, that is I remove so much as to give the child free breathing space. I am afraid I am the only one in New York who does this, but I think that the results of the older practitioners of large experience with this method were satisfactory enough in most instances. My experience is similar and I remove only part of the tonsils in these young children, even at the risk that I may have to do a tonsillectomy later on, I leave as much of the tissue in situ as is practicable with free respiration, and I do this for a good many reasons. I have in former years published a paper in which I spoke of the destruction of the physiological function after operations in the nose and throat, by taking out a tonsil radically very often a great deal of the pharyngeal function is destroyed. The gentlemen tonight did not mention anything of the detrimental effects. When you see a patient who had a tonsillectomy done by a man of large experience coming to your office or your clinic with a big mass of scar tissue, you are not surprised that the patient has more trouble now than before. He calls it tonsillitis, but it is merely due to taking out the tonsil entirely in this case. The patients that come to my department with crippled pharynges from other clinics were too numerous to forget them. I do not speak of any case of Dr. Coakley's or Dr. Pratt's, but I have seen enough cases where there were adhesions at the anterior and posterior pillars, traumatisms of all sorts and so on. I had one patient come to me after tonsillectomy where the entire soft palate was adherent to the posterior wall, and it was a rather difficult task to remove this impediment. My conviction is even greater since I read a paper by Dr. Fleischmann, who came out with the idea that the tonsils not only had a certain function to perform, but that they were glands with an internal secretion, like the thyroid, the adrenals, etc., and he proved this. He showed them that there is a certain reducing substance in the tonsils that is produced by the tonsils and which is given off to the oral cavity and to the blood stream.

My remarks are made not to impress on you that I never do a tonsillectomy, for I do, but I have seen a great many evils following it. We saw cases of rheumatic fever, active cases of tuberculosis, and a good many other diseases persisting in spite of the tonsils having been enucleated. So my advice is: be very slow in taking out tonsils.

DR. HAROLD HAYS: I think these two papers bring out a number of points that ought to cause us to think considerably. There are two points that are of particular importance. In view of the large number of analyses that have been reported to us tonight, I am simply wondering how many patients are going to refuse to have tonsil operations performed on acount of the new method of treatment by X-ray. I think most of us know that this treatment has become quite popular within the last year, and it seems to me that a great many patients delay having operations done that are absolutely essential on account of the rather unproved X-ray treatments, as far as results go. The second point of importance is this: We have seen that a number of failures have been reported where second operations have had to be performed, some of them among Dr. Coakley's and Dr. Pratt's own cases. I think from this we ought to understand very definitely that although the tonsil operation among Dr. Coakley's and Dr. Pratt's own cases. I think from this we

ought to understand very definitely that although the tonsil operation is considered a simple operation, it should not be performed by everybody by any means. It is an operation that needs a great deal of circumspection and experience to be done properly.

It has been very interesting to hear of the gratifying effects, but it would have been interesting to hear more of the operative results, and what they were like after the operation was performed. In other words, so many malformations of the throat take place after operations that are never recorded, which all of us see from time to time.

In view of the fact of the negligible amount of bleeding that has taken place post-operatively, and also from the statistics given at a meeting of this Section three or four months ago, it would seem that bleeding does not play a large part in tonsillectomy, and it is for that reason that a good many men do not take coagulation times. I always take them, but I place less and less reliance on them. I have had to operate on cases whose coagulation time had been prolonged to eleven or twelve minutes, and have had no trouble with them, and with other patients whose coagulation time was four or five minutes I have had considerable trouble. However, you do come across bleeders every once in a while, and for that reason one should always take the coagulation time.

I was much impressed with the results in the mouth-breathers. Of 35 cases 31 were successfully treated, two partially so, and two not benefited. It seems to me that in malformations of the jaw it is extremely important to have the patient understand that you cannot promise to do much by the operation. There are many times I am sure when you find out that the nasal breathing is not as good as it should be, and it can only be properly remedied by orthodontia.

There is one point in regard to the pulmonary abscesses. Up to about a year ago I had claimed that it would be impossible to have a pulmonary abscess if a proper anesthetic was given, but I got a pulmonary abscess in a nurse 24 years of age where the greatest precautions were taken. Since then I have changed my mind about the thing, and have come to the conclusion that it does not make any differnece the amount of care you take if the lung tissue is damaged, if the patient aspirates blood, one is likely to get a pulmonary abscess. There is no way to avoid it.

There is only one point in conclusion. General malaise is mentioned in 16 cases. From the reports of the Trenton Asylum for the Insane we have come to the conclusion that there are a great many of the mental conditions which are directly responsible for foci of infection in teeth, tonsils or the intestinal tract, and it seems to me that there are a great many patients who come to us who perhaps do not know that the cause of their mental deterioration, or debility or general weakness has to do with any particular thing, but there is no doubt that from the improvement that takes place from the removal of the tonsils that the mental condition improves without their realizing that their general physical condition reacts from the removal of the tonsils.

I know that it would be very difficult for any of us to collect statistics in such a satisfactory manner as those which have been presented. I think the subject has been handled in a most illuminating manner.

DR. H. BEAMAN DOUGLASS: I had not expected to say anything tonight, but I have been so much interested in the presentation of this subject that I feel I should say something which will corroborate the views of the authors of the papers. This series of cases has been presented in an individual and unusual way, and the series is large enough to draw a general conclusion from. It contains no surprises, or at least very few surprises to the man who sees a large number of tonsil operations. I think it rather confirms in the minds of those of us who have never made a statistical study of these cases, the general idea which our experience has taught us to believe happens with these cases. The only surprise which I remember is in Table Six, in which one case of vaso-

motor rhinitis was cured by the tonsil operation. I am unable to understand how that may be, unless at the same time the adenoids were removed. Then I could understand it. This paper shows very satisfactory work. It is strange how closely it coincides with an analysis of the work done last year in the Post-Graduate Hospital, when you consider how different the conditions of operation were. Here are two skilled and very high-class men doing private work. There last year we did 1500 tonsil operations, and studying them more particularly for the immediate effect after the operation, we found that in only three cases was there hemorrhage sufficiently serious to call the house surgeon from his room to the wards. We had two deaths. Both of these occurred after being operated on by two very high-class men. One death is said to have been due to an injection of morphin; the other death was one from hemorrhage which was not stopped in time. When you consider the conditions of operating in those cases and in these, I think there is a strange uniformity in the results. There we have several very high-class operators, a great many who are middle-class operators, and a great many more who are inexperienced students, and we allow the students to do the work. We teach them to do this kind of operation under the guidance of competent instructors. Is it not so surprising that with so many cases we have had so little trouble? Is it not surprising that with so many cases done by so many poor operators we did not get many more post-operative complications? If there is anything to be said against the operation, I mean the new tonsil operation, tonsillectomy and not tonsillotomy (for I believe that Dr. Freudenthal is the only one who does tonsillotomy), we would have heard of it long ere now. If you consider how carefully and also how carelessly this operation is done over the United States, is it not wonderful that the results are not more serious? This operation of tonsillectomy has been done for twelve to fifteen years since Sluder first gave it to us, and there have been three or four, perhaps five million tonsillectomies performed in the United States. In the past fifteen years it has been done on children who were then six and ten, and upon men who were then twenty and thirty, and these people have grown up from childhood to adult life, and from adult life to old age, but you do not hear directly or indirectly of any bad effect of the tonsil operation. This is one of the great and successful operations. It is an operation which we must respect because it is not a minor operation, but it is largely devoid of danger in the hands of a competent operator. I cannot admit that all cases will get good results, but by good operating all will get the results this paper describes, and it is very conservative in the estimate it makes of the effects of the operation.

DR. CHARLES HENDEE SMITH: One thing about the effects of tonsillectomy I have been much interested in, and that is the effect on the children's weight. You have all seen children who have been operated on in a dispensary who come into the clinic a day or two later with big circles under the eyes, barely recovered from the anesthesia, with a bad breath, who have had no food for two or three days, and if you have weighed the child before doing the operation you will notice a tremendous loss of weight. If you weigh them regularly thereafter you notice a very slight recovery from that loss of weight. I have seen ten pounds lost in three or four days, and it has been as many weeks or months before the loss of weight is recovered. By keeping the children in bed for about a week until the appetite returns, until the soreness of the throat diminishes usually means that the child does not lose so much weight and recovers what is lost more quickly. As a rule, at the end of a week the weight lost has been regained, and such children go on to a good convalescence. In the cardiac and nutrition classes at Bellevue we made it a rule that all children must be kept in the hospital for a week, and kept in bed most of that time. I feel that that is the most important thing in the after-care of tonsil cases.

DR. COAKLEY (closing): Dr. Brown brought out a point as to the occurrence of acute articular rheumatism after operations on the tonsils, and also as to our views in reference to operating on those cases of acute articular rheumatism that have not completely recovered from the tonsillitis, as I understand it. As far as this problem is concerned, that is rheumatism immediately following tonsillitis. I had one case operated on in the Presbyterian Hospital. That patient had had an acute tonsillitis associated with mild polyarthritis. She recovered from the tonsillitis and practically recovered from the polyarthritis, which was not very severe, and I was urged to operate on her as soon as I thought wise, because she was a cook in the family of a physician, and a very necessary individual in that household. I operated and one tonsil came out nicely and cleanly and the other tonsil we could not enucleate completely. There was a portion left in the supra-tonsillar fossa and nothing I could do would completely remove the piece of tonsil that was left. The tonsil was soft and I could not grasp it with anything. In a short time, not over 48 hours, the patient's pharynx on the side where the portion was left in had a mass in the tonsillar fossa which was bigger than the tonsil was before I attempted to operate on it. She developed an acute polyarthritis much more severe than it was before, and it seemed to me that the connection between these two facts was very great. In no case where a complete tonsillectomy has been done have I seen an acute polyarthritis or any form of rheumatism following the operation. I have often felt that the time to take out the tonsils where patients have an acute polyarthritis is while the tonsils are actively diseased, but I have never been able to get anybody to put such patients at my disposal. The nearest I have come to it is a series of cases of scarlet fever, which were being studied at the Rockefeller Institute at the time they were attempting to make out from the tonsils a possible source of infection. Dr. Flexner asked me if I would be willing to take out the tonsils so that they could see what organisms they might get out of them. I told him that with a proper anesthetic I would be very glad to do what I could. We took out a series of several, from six to eight patients, while they were having temperatures of 102° or 103°, and the tonsil was filled with exudate, and in no case did any serious result follow the operation, although they were given an anesthetic when they had albumin and casts in the urine. In most of the cases the temperature dropped, and from that I feel that it is quite possible in selected cases that the operation on the acute pneumotor cases might be of some advantage.

Dr. Niles spoke of the case that died. I was much interested in that patient. The man had a chronic endo-carditis. He was a thin, spare, sallow man—a very important man in the community, and Dr. Janeway went over him very carefully, and we discussed the problem before we operated. Dr. Janeway was much afraid from his cardiac lesion that he might be a very good subject for endo-carditis. He did not die until three years following the operation. It is barely possible that he had the infective organisms locked up in him all the time, and that subsequently the infection broke out. Dr. Janeway, in relation to the tonsils and cardiac disease, felt that if the man's tonsils were out it would make his chances of escaping acute infective endo-carditis better than if they were in.

Dr. Freudenthal speaks of tonsillotomy in children. There is no more reason why children three years of age should not have the tonsils enucleated than that they should not have the whole appendix taken out. As for the operation, I know that in children two years old tonsillectomy is a more difficult operation than it is in an adult. The capsule is very thin and one must be careful not to destroy anterior and posterior pillars and get a condition which is not pleasing to look at, but with care it seems to me that the operation can be done in children as well as in grown-up persons. We have all seen pillars gone after tonsillotomy

and it certainly does make it harder and leaves considerable deformity when one has to do a tonsillectomy later.

Dr. Hays spoke of the coagulation time in reference to the tonsils. Whenever a patient believes he is a bleeder we take the coagulation time. I agree with Dr. Hays that the patients who have a coagulation time twice the normal do not bleed any oftener than those who have a fairly normal bleeding time. I do not believe that the coagulation time is any very great help, but I do feel that when patients tell us that they have difficulty in their coagulation, that it is wise to take the coagulation time to relieve their minds.

We did not speak of deformity following the operation. I regret to say that occasionally we do get deformity, not in a very large percentage of cases, but sometimes we find a little more of the posterior pillar gone than we would like, and the result is not as good cosmetically as we would like to have it, but with very careful dissection of the posterior and the anterior pillars, deformities are not very great. We cannot save them always with cases that have been operated on before. Many of them have more or less shortening of the pillars.

I see no reason why lung abscesses should always be inhalation abscesses. I cannot see why a considerable number may not be of the infarct type. The parts that are operated on are in constant motion and are swollen, and there must be a certain amount of tearing loose which would favor the clots breaking off and getting through the veins into the lungs, and I believe there are more infarct cases than we have any idea of.

Dr. Smith spoke about loss in weight. We did not notice that, because we do what Dr. Smith advocates—have the patients rest in bed, and I think there is one other reason also. There is less trauma in a dissection operation than in many of the operations that are done with instruments of the Sluder type. Our young patients do not have difficulty in taking their food, and that, together with the lack of trauma and keeping them quiet accounts for the good results. We usually keep the cases in bed for 48 hours in the hospital, and they are told to go home and keep in bed to lessen the danger of infections. As an instance of that we had a child in very poor shape suffering from diabetes, with badly infected tonsils, and before operation she was on a very low diet —about a 60 per cent diet—and that child had lost one-quarter of a pound at the end of the week following tonsillectomy. That was the total loss of weight in that time. She was able to take such food as would be given to her during that time.

Oralism and Auralism

In these pages we desire to keep our readers in touch with the activities in Problems of the Deaf and Corrective Speech.

The American League for the Hard of Hearing is an established entity and every worker in oto-laryngology should be familiar with its operations and its possibilities. It is a favorable sign of the times when the medical profession interests itself seriously and actively in special educational problems. The American League for the Hard of Hearing is an organization established for the purpose of bringing into closer co-operation all interests and all individuals to alleviate, to elevate and to stimulate the conditions of the deafened and the hard of hearing.

The officers and charter members of this organization have framed a constitution and working plan on broadest lines, hoping to include all who are interested in this question in every community in the land. Chapters are to be organized everywhere to assist in carrying out the plan of work as laid down by this central body. Local leagues have already been organized in New York, Chicago, St. Louis, San Francisco, Los Angeles, Toledo, etc., etc., and the effect of this radiation of a common cause is already in evidence. New chapters are being organized in many communities, classes for the teaching of lip-reading to the adult deaf poor are being formed, labor bureaus for the employment of deafened workers are active, community centers for getting the hard of hearing members together for co-operation and for the closer study of these problems are enthusiastically attended, publicity in all communities where chapters are organized is effectively educating the people to an understanding of these important questions and a large number of deafened individuals are reaping the reward of such activities, are becoming expert lip-readers, are uplifted by the spirit of good-fellowship, are aided by employment bureaus, are stimulated by the force of example with which their fellows are overcoming these handicaps and the entire movement has splendid potentialities. Let oto-laryngologists be active in this work; let them assist in the organization of local chapters as has been done by Dr. Wendell C. Philips, and Dr. Harold M. Hays in New York, Dr. Thomas Hubbard in Toledo, Dr. Joseph C. Beck in Chicago, and others.

The address of the Secretary of the American League for the Hard of Hearing is: Annetta W. Peck, 126 East 59th street, New York City. Get in touch with one or more teachers of lip-reading for the adult deaf and a number of fellow-citizens in your community who appreciate the value of this movement and organize a local chapter.

St. Louis Chapter, A. L. for H. O. H.

The organization of the St. Louis League for the Hard of Hearing, the new local chapter of the American League for the Hard of Hearing, was effected early in October, 1920. There were over twenty charter members in attendance. The meeting was addressed by Dr. Harold Hays, President of the New York League for the Hard of Hearing, who outlined the plan and scope of work for the local chapter and spoke encouragingly of the good work projected in St. Louis.

The purpose of the league is to create a community center for hard of hearing people; to co-operate in all questions concerning the prevention of deafness; to establish an employment bureau where hard of hearing people who have acquired lip-reading may be placed in satisfactory positions; to secure club rooms where reading, checkers, chess and bridge can be indulged in; to invite ministers of various denominations to address the deafened members of this chapter on Sunday afternoons; to develop all activities that may tend to ameliorate the conditions of the deafened; to create a better social spirit and to co-operate in legislation, with the medical profession, with school authorities, with social service workers and all concerned in the uplift of the deaf.

Permanent club rooms have been tendered the local chapter through the courtesy of the Trustees of the Central Institute for the Deaf and are located at 900

South Kingshighway. A free evening class for instruction in lip-reading has been organized under the leadership of Miss Lula Bruce and will meet every Tuesday evening at eight o'clock at the club rooms. All hard of hearing and deafened people who desire to avail themselves of this unusual opportunity to study lip-reading and better speech are invited to join this class.

The newly elected officers of the league are:

Mr. J. M. Turley, President.
Mrs. H. Broadbent, Vice-President.
Miss Marion G. Scudder, Secretary-Treasurer.

All inquiries concerning the work of the local chapter may be addressed to the Secretary-Treasurer at the chapter headquarters, 900 South Kingshighway.

Toledo Chapter, A. L. for H. O. H.

The Toledo League for the Hard of Hearing, which was organized about a year ago, had a house-warming in its new Club House, November 15th, last. The writer had the privilege of attending this house-warming as an invited guest, and it was indeed a privilege to see the enthusiasm and co-operation of more than one hundred people who crowded into the new Club House during a driving snowstorm to lend their presence on this eventful occasion. The moving spirit of the Toledo League for the Hard of Hearing is Mrs. Rodney Dewey. Mrs. Dewey, on the advice of her otologists some years ago, took up lip-reading to serve as an asset in the case of her defective hearing; she became not only an expert lip-reader but a qualified teacher of speech-reading and the pioneer instructor in this special education in Toledo. She has made many of her pupils quite independent of their handicap of deafness, and it was a splendid tribute not only to her energies in organizing the Toledo League but also to her abilities as a teacher that so many earnest and enthusiastic men and women were present and assisted at the dedication of the Toledo League's "Home."

I think Dr. Thomas Hubbard, whose guest I was on this occasion, also felt the inspiration of the day and realized that the Toledo League had builded even better than it knew.

What Toledo has done, other communities can do.

Demonstration in Detroit

At a meeting of the Wayne County Medical Society in Detroit in November, 1920, a practical demonstration of the work of the pupils and teachers of the Detroit Day School for the Deaf was presented to the members and their friends. This was the first demonstration of its kind in the City of Detroit and it afforded the medical profession of that city an opportunity to realize what good work was going on in their community in this special form of education. One of the prominent otologists of Detroit remarked that it was the first time he had ever seen the practical accomplishment of oral work in the training of totally deaf children. We cannot refrain from the comment that the Detroit Day School for the Deaf was established more than ten years ago and yet but two or three of the otologists of this large community knew what was being done there or how it was done. In fact, one of the Detroit otologists who accompanied the writer on a visit to this excellent school asked for information as to the whereabouts of the school. These comments are intended for constructive criticisms and not fault-findings. We of the otological and laryngological profession have our time and talents so seriously engaged in the study of the pathology, surgery and therapy of diseases of the ear, nose and throat that but little attention has been paid to the economics, pedagogy, psychology and sociology of the deaf. Every doctor owes the community a certain responsibility in the care and proper education of the normal child and to a certain degree recognizes such responsibility. He also owes a responsibility in the case of the deaf child and the defective speech child—a responsibility which until now but few members of the medical profession have either assumed or discharged. There is no group working for the upbuilding of a community more influential and more effective for good than the members of the medical profession and in the economic upheavals and changes that are bound to follow in the wake of the world war or any other great crisis in the history of a nation, there is no greater opportunity for a study and a realization of such responsibilities than now.

NUMBER 2

Oralism and Auralism

In these pages we desire to keep our readers in touch with the activities in Problems of the Deaf and Corrective Speech.

Chicago Day Schools for the Deaf.

A visit to the Parker Practice School last week gave us a good insight of the work done for deaf children by the Chicago Public School System. Like all progressive movements in special education, the oral training of the deaf child has been introduced in Chicago and today there are four free and public day schools where deaf children can receive the benefits of exclusively oral training in the city of Chicago. For the benefit of our readers in Chicago and vicinity we include the locations of these schools:

Parker Practice School, 68th street and Stewart avenue; Miss Clara E. Newlee, Head Teacher.

Beidler School for Deaf Children, Kedzie avenue and Walnut street; Miss Alice C. Schilling, Head Teacher.

A. G. Bell School for Deaf, 3730 Oakley boulevard; Miss Katherine E. Ashelby, Head Teacher.

Kozminski Day School for the Deaf, 54th street and Ingleside boulevard; Miss Margaret Van A. McKee, Head Teacher.

At the Parker Practice School we found a splendid equipment, large, well-ventilated, well-lighted schoolrooms, and an excellent teaching corps. The classes were small, enabling the teachers to offer much individual attention to pupils. There was good scholarship, good language and fair speech. We saw but little rhythm and music work and no efforts have as yet been made at systematized acoustic training or the conservation of residual hearing. There was quite a number of pupils with residual hearing sufficient to qualify them to take much of their instruction by acoustic methods. We hope that the school authorities will soon authorize the head teacher to have one of her staff qualified and trained to engage in this special work. There is much promise and great opportunity there.

We are assured that the other day schools are conducted along similar standards and of equal scholarship.

Schools for the Deaf.

The last issue of the Annals of the Deaf (January, 1921), contains a list of all schools for the deaf in the United States, their classification into public and private schools, state and local schools, Sign, Combined and Oral Methods of instruction, location, capacity in pupils, names of executive officers, and other valuable data. Oto-laryngologists are frequently called upon to advise parents of deaf children in the selection of school, location, age at which child is accepted and scholastic opportunities. It would be well for each oto-laryngologist to have a reference copy of this issue of the Annals. It also contains an alphabetical list of instructors of the deaf throughout the country.

Chicago League for the Hard of Hearing.

The officers of the Chicago League for the Hard of Hearing gave an informal supper the evening of February 4th last. Besides the officers and some of the members of the League, there were present Dr. Wendell C. Phillips of New York, Dr. Charles W. Richardson of Washington, Dr. Max A. Goldstein of St. Louis and the following oto-laryngologists of Chicago: Drs. Norval H. Pierce, Joseph C. Beck, Gordon Wilson, George E. Shambaugh, Burton D. Haseltine, Charles M. Robertson and others.

After introductory remarks by Miss Mary McCowan, the President of the League, Dr. Phillips, gave an interesting

talk on the organization of the American League for the Hard of Hearing, its purposes and prospects.

Dr. Pierce gave a brief report of his visit to the Illinois State School for the Deaf at Jacksonville, and pledged his interest and active support in the League and in work with the deaf child.

Dr. Goldstein emphasized the importance of co-operation of the oto-laryngologic profession in particular and the American Medical Association in general in all problems associated with the uplift of the deaf. He referred to the Committee on the Deaf Child which had just concluded one of its meetings in Chicago, mentioned the official resolutions of the Committee as adopted at the annual meeting of the American Medical Association in New Orleans and endorsed without qualification by the Society of Progressive Oral Advocates in Mount Airy and with some modification by the American Association for the Promotion of the Teaching of Speech to the deaf at the same meeting. He stated as his opinion that it was not an act of courtesy or good-will alone that should prompt the oto-laryngologists to study and support all movements associated with work for the deaf, but an actual civic and professional obligation.

He commented favorably on the fact that Chicago, through its public school system, offers to the deaf children of that city exclusively oral instruction, cited the excellent equipment and teaching facilities for such special education in the four Chicago Oral Day Schools. He directed attention of the Chicago oto-laryngologists to the opportunities here afforded for a closer study of the deaf child and expressed the hope that his co-workers would co-operate with the Chicago teachers in these special schools toward educational progress.

Dr. Richardson cited the splendid achievements of the group of teachers engaged in the instruction of lip-reading to deaf soldiers in the Department of Vocational Training at Cape May. He declared himself unconditionally an advocate of exclusively oral training for all deaf children and especially in the form of instruction adopted by all day schools for the deaf.

Dr. Haseltine referred to the possibilities of lip-reading for the deafened as an asset in large industrial institutions.

Drs. Beck and Robertson and Miss Gertrude Torrey also participated in the discussions.

It was an unusually interesting evening and much useful and practical information was brought out during the discussion.

The Committee on the Deaf Child.

In the November, 1920, issue of THE LARYNGOSCOPE (page 729) the report of the Committee on the Deaf Child has been officially presented to the oto-laryngologic profession. We feel that it is the duty of every oto-laryngologist to read and digest this report carefully. This committee, consisting of Dr. Charles W. Richardson of Washington, Dr. Elmer L. Kenyon of Chicago, Dr. Thomas J. Harris of New York and Dr. Max A. Goldstein of St. Louis, has been appointed by the oto-laryngologic section of the American Medical Association several years ago as a permanent committee. At the New Orleans meeting of the American Medical Association the report of this committee was ratified by the Section on Oto-Laryngology and endorsed by the Council of the American Medical Association.

A formidable plan and scope of work is outlined by this committee in its official report, the underlying purpose of which is to raise the standard of education for the deaf, to co-operate with all organizations and factors concerned in the problems of the deaf and to enlist the interest and support of every member of the American Medical Association in this splendid endeavor.

This Committee on the Deaf Child plans to have another report ready to submit to the next annual meeting of the American Medical Association in Boston in June, 1921.

Supplement to THE LARYNGOSCOPE.

Number 3

Oralism and Auralism

In these pages we desire to keep our readers in touch with the activities in Problems of the Deaf and Corrective Speech.

SOCIETY OF PROGRESSIVE ORAL ADVOCATES.

The Society of Progressive Oral Advocates will hold its Third Annual Convention at Washington University Medical School Auditorium in St. Louis, next June 16, 17 and 18. The provisional program of participants includes a number of doctors who have shown unusual interest in the problems of the deaf and in corrective speech. It is a matter of much significance that medical colleagues in several specialties are bending their energies toward this movement.

The officers of the Society of Progressive Oral Advocates conduct the meetings of this organization much like those in vogue in special medical societies and this tends to elevate such meetings to a strictly scientific standard. The cooperation of the oto-laryngologist, the neurologist, psychiatrist and pediatrician will add significant strength to the development of the deaf.

There was a time when the teacher of the deaf, whether class-room instructor, principal or superintendent, regarded the investigations of these specialists into teaching methods, mental and special examinations of pupils and the study of numerous questions that presented themselves to the medical mind, as the act of an interloper. In fact, the writer has been told on several occasions that such inquiries were neither desirable nor welcome. But the spirit of the times is changing; the far-sighted teacher of the deaf child is now ready to recognize the fact that the oto-laryngologists, the psychiatrist and pediatrician with his many years of training in anatomy and physiology of the brain, the hearing organs and the speech mechanism, together with his methods of diagnosis and logical investigations, may develop into a co-operative force that prognosticates a greater possibility and a brighter future for the deaf child.

The teacher of the deaf and the experienced oto-laryngologist and psychiatrist, sitting together in convention and discussing problems of mutual interest not only in their broader aspect but also in finer scientific details, must eventually produce better and bigger things in this field of special education.

Too much stress cannot be laid on the important productiveness of such co-operation. The trained teacher of the deaf and the experienced oto-laryngologist each contributes an entirely different line of thought and experience to the problems concerned in the development of the deaf child and the several factors when welded into a large and influential working force must stimulate valuable thought and act in the evolution of this work.

We hope that the excellent example set by the small group of men in the medical profession who are now interesting themselves in this cause will stimulate many colleagues throughout the country to similar effort.

TENTATIVE PROGRAM.

"Observations on Day Schools for the Deaf," Miss Gertrude Van Adestine, Principal, Detroit Day School for the Deaf.

"Meet and Convince the Public," Miss Francis Bell, Flint, Mich., Oral Department, Michigan State School for the Deaf.

"Rhythm," Miss Eleanor Jones, Scranton, Pa., Day School for the Deaf.

"The Religious Training of the Deaf," Mr. Arthur Manning, Pittsburgh, Pa., Western Pennsylvania State School for the Deaf.

"Acoustic Training," Miss Lilla B. McKenzie, St. Louis, Central Institute for the Deaf.

"The Acoustic Method," led by Dr. Max A. Goldstein. Participants: Mr. John Dutton Wright, Mrs. Anna C. Hurd, Miss L. B. McKenzie, Miss Berry, Miss Van Ingen, Miss Pettipiece, Miss Moore.

"Social Service Work Among the Deaf in the State of Illinois," Miss Hasenstab, Illinois State Social Service Worker.

"Neurological Aspects of Speech and Hearing Defects," Dr. Sidney I. Schwab, Professor of Neurology, Washington University Medical School, St. Louis.

Dr. J. E. W. Wallin, St. Louis, Director. Psycho-Educational Clinic.

"Exceptional Children," Maxmillian G. P. Grossman, Plainfield, N. J., Director of School for Exceptional Children.

"Report of Unusual Cases of Deaf and Defective Speech Soldiers," Dr. Gordon Berry, Worcester, Mass., Late Officer, Department of Reconstruction for Deafened Soldiers, Cape May, N. J.

"How and Why I Organized a Local Chapter of the League for the Hard of Hearing," Mrs. Rodney Dewey, President, Toledo League for the Hard of Hearing.

"Teaching the Adult Deaf," Mrs. Edw. B. Nitchie, New York, Principal, New York School for Hard of Hearing.

'Methods of Mental Reconstruction of the Deafened," Dr. Harold M. Hays, President, New York League for the Hard of Hearing.

"Types of Individual Adult Pupils in Lip-Reading," Miss Gertrude Torrey. Principal, Chicago School of Lip-Reading.

The officers of the Society of Progressive Oral Advocates herewith extend a cordial and general invitation to all members of the medical profession and especially to the oto-laryngologists, neurologists and pediatricians to attend this convention and to inoculate themselves with the specific infection which has already stimulated the smaller group of their confreres to assist in this worthy educational and re-educational work.

Deaf Mutism—A Critical Review.

Dr. J. Kerr Love of Glasgow publishes an interesting review of Deaf Mutism in the January, 1921, issue of the British Journal of Laryngology and Otology. He traces Deaf Dumbness or Deaf Mutism chronologically from Pliny, the Elder (79 A. D.) through the ages and cites the interesting observation that for nearly 1,800 years "medical men left the deaf mute severely alone."

Love quotes from Itard of Paris, Kramer of Berlin, Schmaltz of Dresden, Wild of Dublin, Toynbee of London, Hartmann of Berlin, Mygind of Copenhagen, Bezold of Munich and others, presenting brief paragraphs of their special contributions to the subject of Deaf Mutism and to the whole field of diagnosis, statistics, etiology, morbid anatomy and treatment of the deaf.

He writes with emphasis and encouragement on the great value of residual hearing in the development of speech: "These semi-deaf children and the semi-mute above referred to should certainly be trained by the oral method. Both of these classes if properly taught will continue to use speech as the ordinary means of conversing with their fellowmen in after-life."

Dr. Love concludes this critical review of Deaf Mutism by this characteristic paragraph: "The role of the medical man is not that of a teacher of the deaf. His is to study not only the ears, the hearing, the voice and the speech, but the whole deaf child, to apply this clinical knowledge in the interests of the deaf, and above all, to seek for the causes of deafness and by their removal to make these special methods merely interesting recollections."

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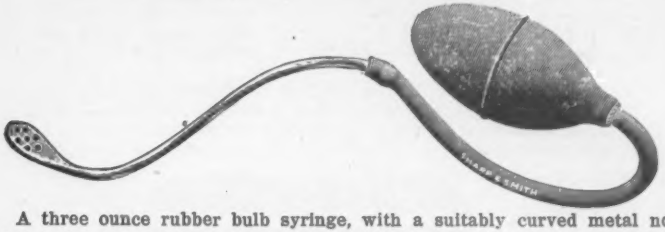

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Continued on page ii.

Nystagmus and Its Clinical Significance. Prof. Dr. HEINRICH NEUMAN, Vienna 911

Alterations of Orientation in Labyrinth Lesions and of the Central Nervous System. Prof. F. LASAGNA, Parma, Italy 922

Report of a Case of Peritonsillar Abscess Followed by Phlebitis of Internal Jugular Vein. Dr. J. C. KIRBY, Boston 926

Fibro-Lipomata of the Membrana Tympani. Dr. E. VERNON, Chicago 928

Otiobiosis (Ear Tick Disease). Dr. NOXON TOOMEY, St. Louis 930

Epiphora After Extirpation of Lacrimal Sac. Dr. J. J. GILBERT, Providence 938

The Early Stages of Hyperplastic Ethmoiditis (Larval Ethmoiditis). Dr. S. McCULLAGH, New York 941

Aspergillos of the Maxillary Sinus. Dr. R. H. SKILLERN, Philadelphia 946

A New Remedy for Vincent's Angina. Dr. C. R. KING, Toledo 950

Arrested Laryngeal Tuberculosis—Abscess of Zygomatic Fossa Following Pneumonia—Exostosis of External Auditory Canal. Dr. HENRY S. WIEDER, Philadelphia 953

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CONTENTS.—Continued from page 1.

Some Facts Concerning Hay Fever and Asthma. Dr. M. J. GOTLIEB, New York 957

A New Method of Measuring Hearing Power by Means of an Electric Acumeter. Dr. JOHN GUTTMAN, New York 960

A New Method and a New Instrument for Endoscopic Examination of the Maxillary Sinus. Dr. H. L. BAUM, Denver 965

A New Tonsil Instrument and Method of Use. Dr. T. E. WALKER, Cleveland 969

A New Perichondrium Elevator for Resection of the Septum. Dr. C. A. CAMPBELL, Steubenville, Ohio 973

Book Reviews 974

Items of Interest X

SOCIETY PROCEEDINGS.

New York Academy of Medicine 977

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Then, our previously trained staff makes over these abstracts into English, and they will reach New York as quickly as (sometimes before) the foreign medical journals get there. Thus, the gap between the date of an article and its appearance in abstract form in our monthly Survey will be bridged, and our subscribers will appreciate the efforts made in their interest.

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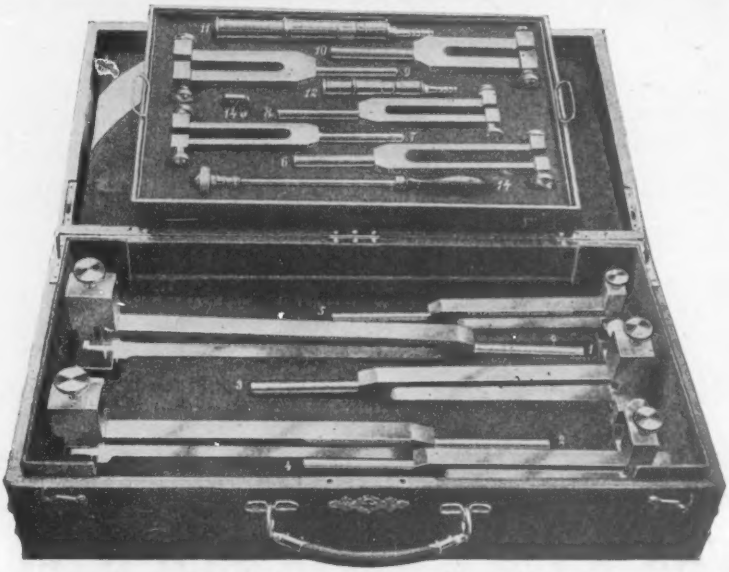

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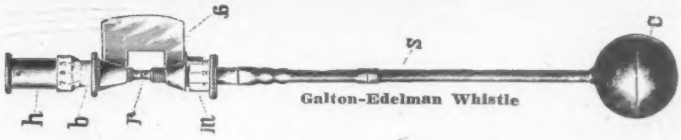

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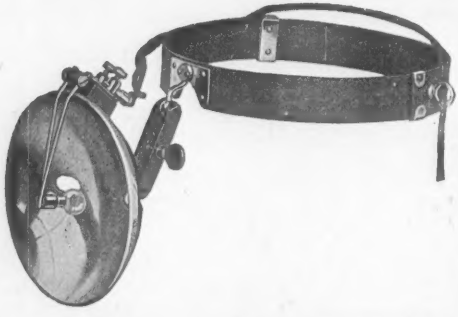

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ITEMS OF INTEREST.

Under this heading THE LARYNGOSCOPE will publish items written by Doctors, to Doctors and for Doctors, with special reference to Laryngologists and Otologists: Notes, Queries and Answers. Communications may be sent to the Editor of News Items, LARYNGOSCOPE. Names will not be published, but must accompany all communications.

LIST OF AMERICAN NATIONAL ORGANIZATIONS WITH DATES AND PLACES OF THEIR NEXT MEETING.

American Laryngological Association, Harmon Smith, New York, President. George M. Coates, 1736 Pine Street, Philadelphia, Pa., Secretary. May 1-2-3, 1922, Washington, D. C.

American Otological Association, H. S. Birkett, Montreal, Can., President. Thos. J. Harris, New York, 116 East 40th St., Secretary. May 2-3, 1922, Washington, D. C.

American Laryngological, Rhinological and Otological Society, L. A. Coffin, New York, President; William H. Haskin, 40 East 41st St., Secretary. Date of meeting not yet announced.

American Academy of Ophthalmology and Oto-laryngology, Edward F. Parker, President, Detroit, Mich. Luther C. Peter, 1539 Spruce St., Philadelphia, Pa., Secretary. September, 1922, Minneapolis, Minn.

Section on Laryngology and Otology of the A. M. A., Joseph A. Stucky, Lexington, Ky., President. William B. Chamberlin, Osborn Bldg., Cleveland, Ohio, Secretary. May 22-26, 1922. St. Louis, Mo.

The de Roaldes Prize of the American Laryngological Association, a gold medal of the value of $150 offered for the best original thesis upon a subject pertaining to Laryngology or Rhinology is now open for competition to non-members of the Association.

Theses must be in the hands of the Chairman of the Prize Committee prior to April 1st, 1922. D. Bryson Delavan, M. D., Chairman. Address: 40 East 41st St., New York.

Sir St. Clair Thomson has had conferred on him the Order of Chevalier de la Legion d'Honneur for services rendered in France with the Croix Rouge Francaise during the War. *Mille felicitations.*

Dr. Dunbar Roy of Atlanta, Georgia, has returned from an extended trip abroad, spending most of his time in France, Italy and Switzerland. He was accompanied by Dr. Richmond McKinney of Memphis, Tenn.

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says a well-known physician, "are merely the 'cry of the nerves' for tonic treatment and better nutrition."

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Dr. James Eads How, the "millionaire hobo," graduated in medicine from a St. Louis medical college according to a letter sent to the New York *Tribune*. The letter was written apropos of the service by Dr. How to a sick woman on shipboard. The writer further states that Dr. How has legitimate claim to the titles of humanitarian and doctor.

A New York physician writes to the Journal of the A. M. A., stating that he has not seen a single case of cocain poisoning in 12 years, and this immunity is due to the fact that he gives every patient, without exception, a large dose (25 to 50 c. c.) of whiskey or brandy by mouth, 10 to 30 minutes before the first injection of cocain. In long continued operations the dose of the alcoholic liquor may have to be repeated. Roughly translated the amount of whiskey thus given could be said to be "two fingers."

The enormous popularity that will follow the general publication of this letter is indubitable. We may expect great popularity in minor operations. The gentleman whose tonsils are to be removed will insist on one at a time, and beg the doctor not to hurry, also not to be too exact in measuring out the dose of the preventive medicine.

After both tonsils are thus removed, the patient could have his teeth extracted, one at a time, and thus draw out the frequency of the need of alcoholic stimulants, delaying perhaps by an occasional trip to Canada in the summer, and Havana in the winter. Life would then again be "one sweet song" to the bibulously inclined.

Dr. H. M. G. writes to the Journal commending the use of hollow tubes following submucous resection, saying: "The use of the tube is so simple, yet it so revolutionizes the after treatment, that one wonders it has not been described before." To this Dr. O. G. answers: "This method was described 15 years ago by Professor G. Alexander of Vienna."

We rise to state that the use of rubber tubes in nasal surgery was first described by Dr. D. H. Goodwillie in the N. Y. Med. Journal, May 17, 1890, p. 540. His article was entitled "Nasal Intubation."

The presence of the rubber proved too irritating, the tubes were too long. As a result the perforated vulcanized tubes of varying sizes, known as the Mayer-Asch Tubes, came into vogue and are still used in appropriate cases.

The following letter we believe may interest our readers: "Editor—Items —We have just finished the most delightful trip, personally conducted by a 'laird of high degree.' We journeyed through Ireland with the Viceroy's son, to India as the guest of the Maharajah, to the West Indies and back to London. We may as well say it was in a book called 'Here, There and Everywhere,' by Lord Frederick Hamilton (Doran). It was a most interesting description, abounding in humor, and very enjoyable. I read it aloud to my better-half, who in the meantime busied herself sewing.

"His closing words are so apropos to the subject so frequently mentioned nowadays, that we are drifting far away morally, that I take the liberty of quoting those paragraphs.

"'A Scottish clerical friend of mine, the minister of a large parish in the South of Scotland, told me that there were just two categories of people in the world, 'decent bodies' and the reverse, and the result of his seventy years experience of this world was that the 'decent bodies' largely predominated.

"Although I am unable to claim quite as many years as my friend, the old minister, my experience coincides with his—the 'decent bodies' are in a great majority. I have met them everywhere amongst all classes,

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and in every part of the world, and their skins are not always white. They may not be conspicuously to the fore, for the 'decent bodies' are not given to self-advertisement. They have no love for the limelight, and would be distinctly annoyed should their advent be heralded with a flourish of trumpets. In the garden-borders the mignonette is a very inconspicuous little plant, and passes almost unnoticed beside the flaunting gaudiness of the dahlia or the showy spikes of the hollyhock, yet it is from the modest low-growing, grey-green flower that comes the sweetness that perfumes the whole air, for the most optimistic person would hardly expect fragrance from dahlias or hollyhocks. They have their uses; they are showy, decorative and aspiring, but they do not scent the garden. Between 1914 and 1918 I, in common with most people, came across countless hundreds of 'decent bodies,' many of them wearing V. A. D. nurse's uniforms. These little women did not put on their nurse's uniform merely to pose before a camera with elaborately made-up eyes and a carefully studied sympathetic expression, to return to ordinary fashionable attire at once, afterwards. They scrubbed floors, and carried heavy weights, and worked till they nearly dropped, week after week, month after month, and year after year, but they were never too tired to whisper an encouraging word, or render some small service to a suffering lad. I wonder how many thousands of these lads owe their lives to those quiet, unassuming, patient little 'decent bodies' in blue linen, and to the element of human sympathy which they supplied? And what of the occupants of the hospital beds themselves? We all know the splendid record of sufferings patiently borne, of indomitable courage and cheerfulness, and of countless little acts of thoughtfulness and consideration for others in a worse plight even than themselves. Who, after having had that experience, can falter in their belief that the 'decent bodies' are in a majority?

"I know many people looking forward to the future with gloom and apprehension. I do not share their views. For the moment the more blatant elements in the community are unquestionably monopolizing the stage and focusing attention on themselves, but I know that behind them are the vast unseen armies of 'decent bodies' who will assert themselves when the time comes.

"These 'decent bodies' are not the exclusive product of one country, of one class, or of one sex. They are to be found 'Here, There and Everywhere.'

"It was a most glorious vacation, in fine company and inexpensive.

"E. I. L."

A PENALTY OF BEING OLD

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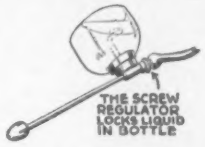

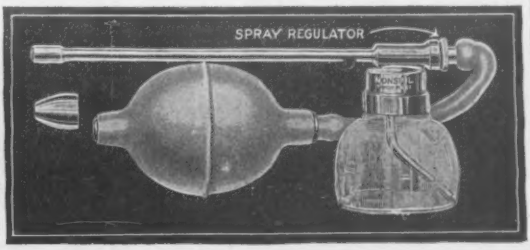

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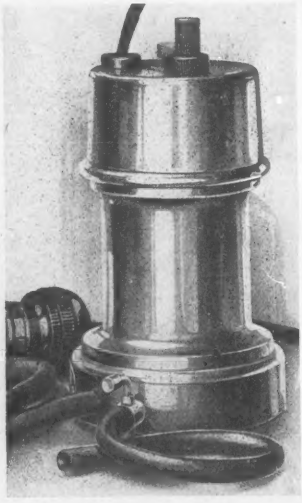

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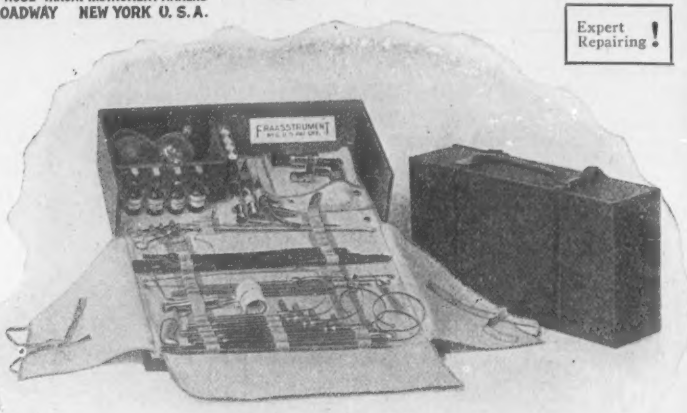

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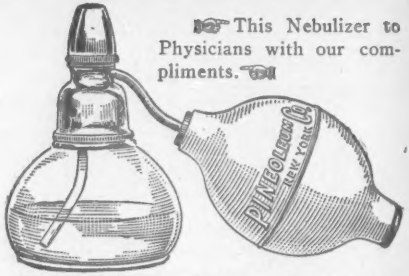

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In speaking of the treatment of Influenza one of the leaders of the medical profession states: "The persistent spraying of the nose and pharynx with some form of mild disinfectant materially aids in confining the infection in its early stages to the upper passages and this procedure gives the impression, when tried in a large number of patients, that it prevents in many cases the spread downward into the bronchi and thus limits pulmonary complications."

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ANNOUNCEMENT

OF THE

CENTRAL INSTITUTE FOR THE DEAF

EIGHTH SESSION

1921-1922

DEPARTMENTS:

Normal Training School for Teachers of the Deaf.

Systematic course in two semesters of lectures, quizzes, class work and observation and practice teaching in elementary and grammar grades, by oral method exclusively; correction of defects in speech. Ample clinical material for demonstration and practice. First semester begins October 1, 1918.

Private Oral School for the Deaf.

Private oral school for deaf children from primary grades through college preparatory. Individual attention of experienced teachers; not more than five pupils in a class.

Instruction in Lip-Reading for Adults.

Private and class instruction for the adult deaf in lip-reading. Conversational classes for beginning and advanced pupils.

Correction of Defects in Speech

The correction of voice and speech defects; imperfect phonation, indistinct articulation, lisping, stuttering and stammering.

Clinic for the Deaf.

A free clinic for defectives in hearing and speech will be conducted daily.

Free classes will be organized for oral instruction; evening classes will be arranged for the instruction of adults in lip-reading and articulation and for the correction of defects in speech.

Otologic Bureau of Information.

This Bureau is equipped with best reference library facilities to furnish the medical and pedagogic professions any information relating to the deaf, modern methods of education, reprints of important papers, etc., etc.

PROFESSIONAL NOTICE:

THE CENTRAL INSTITUTE FOR THE DEAF has been established to meet an urgent demand for well-trained ORAL TEACHERS for institutional and private work and to afford best facilities for instruction in all progressive oral methods to children and adults, for training in lip-reading and for the correction of defects in speech.

This work is in the hands of thoroughly competent experts in this field and will be conducted along strictly ethical, professional lines, under the auspices of an ADVISORY COUNCIL of prominent otologists and educators of the deaf.

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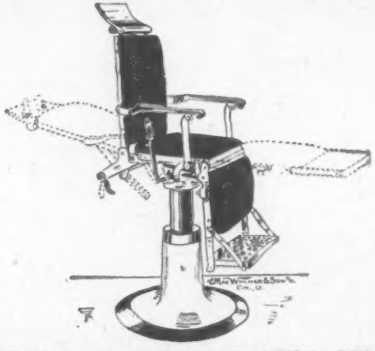

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As a cough alleviator, respiratory anodyne and sedative, it is both potent and trustworthy.

Glykeron is infinitely more dependable than extemporaneously prepared mixtures having the same or similar composition.

Glykeron increases the fullness of inspiration and expiration, stimulates bronchial secretion, promotes the liquefaction of mucus and allays respiratory distress.

It is especially serviceable in the treatment of cough, bronchitis, laryngitis, phthisis, pneumonia, whooping-cough, asthma and inflammatory disorders of the respiratory tract.

The value of Glykeron is attested by the universal use made of it by members of the medical profession.

COUGH.

Whether acute or chronic, cough is promptly allayed by Glykeron. Irritability of the respiratory mucous membrane is diminished. bronchial secretion is increased and inflammation is reduced. The preparation is particularly useful in dry, hacking and unproductive cough or that attended with pain, respiratory distress or restlessness.

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Glykeron diminishes the intensity of asthmatic paroxysms and lengthens the intervals between their recurrence. By the systematic administration of the preparation, asthmatic attacks can be lessened in severity and often aborted.

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In the initial stage of pneumonia, the preparation exerts a helpful sedative influence. In the latter stages of the disease, its anodyne effect proves helpful..

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Menthol, 8/100 grain.

Syrup Cocillana Compound does not disturb the stomach. It has no constipating effect—in fact it is slightly laxative, due to the cocillana and cascarin. It is adapted to administration to persons of all ages.

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